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STUDIES IN THE BULBOUS LILIACEAE IN SOUTH AFRICA: 7. THE TAXONOMY OF *DRIMIA* AND CERTAIN ALLIED GENERA

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Abstract

The history of taxonomic work on the South African species of *Drimia, Urginea, Litanthus, Urgineopsis, Thuranthos, Schizobasis* and *Bowiea* (Liliaceae) is outlined; the closely related *Rhadamanthus* is not dealt with. Keys to the genera and species recognised are provided. *Urginea, Urgineopsis* and *Thuranthos* are placed in synonymy under *Drimia* (23 South African species). *Litanthus* (monotypic), *Schizobasis* (2 species in South Africa) and *Bowiea* (1 species in South Africa) are also recognised. For each species a description and notes on the taxonomy, nomenclature (including synonyms and typification) and distribution are provided. Thirteen new combinations are made in *Drimia*.

Uittreksel

STUDIES VAN DIE BOLDRAENDE LILIACEAE IN SUID-AFRIKA: 7. DIE TAKSONOMIE VAN *DRIMIA* EN SEKERE VERWANTE GENERA

Die geskiedenis van die taksonomiese werk op die Suid-Afrikaanse soorte van *Drimia, Urginea, Litanthus, Urgineopsis, Thuranthos, Schizobasis* en *Bowiea* (Liliaceae) word geskets; die naverwante *Rhadamanthus* word nie behandel nie. Sleutels tot die genera en soorte erken word voorsien. *Urginea, Urgineopsis* en *Thuranthos* word as sinonieme onder *Drimia* (23 Suid-Afrikaanse soorte) geplaas. *Litanthus* (monotipies), *Schizobasis* (2 soorte in Suid-Afrika) en *Bowiea* (1 soort in Suid-Afrika) word ook erken. Vir elke soort word 'n beskrywing en notas oor die taksonomie, nomenklatuur (insl. sinonieme en tipes) en verspreiding voorsien. Dertien nuwe kombinasies word in *Drimia* gemaak.

Introduction

In a previous paper (Jessop, 1975) it was proposed that within the Scilleae there is a rather well-defined subgroup containing eight currently recognised genera—*Urginea, Drimia, Rhadamanthus, Litanthus, Urgineopsis, Thuranthos, Schizobasis* and *Bowiea.* The principal characters on which this group is recognised are the spurred bracts (rare in other genera), loose testa, marcescent perianth and the absence of starch in the bulb scales.

Nordenstam (1970) revised the taxonomy of the genus *Rhadamanthus* and this genus will, therefore, not be dealt with here.

The first species of this group to be validly published were two species placed in *Ornithogalum* and one species in *Hyacinthus* by Linnaeus (fil.) in 1781. The *Hyacinthus* species was transferred to *Rhadamanthus* by Salisbury in 1866.

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Although Thunberg (1794) retained Linnaeus' species in *Ornithogalum,* three closely related species, which he described, were placed in *Anthericum. Anthericum* is no longer considered to include bulbous species. Jacquin (1786–97) followed Thunberg in placing a further five species in *Anthericum,* and one in *Ornithogalum,* but he also recognised a new genus, *Drimia,* for four species which differed conspicuously in having reflexed perianth segments. Jacquin did not provide a generic description for *Drimia* which was, therefore, not validly published. Willdenow (1799) validated the name.

The species with spreading perianth segments (*Anthericum* and *Ornithogalum sensu* Jacq.) and reflexed segments (*Drimia sensu* Jacq.) have generally been kept separate from one another, but there has been much debate as to the correct generic names to assign to them. Poiret (1804) transferred three of Jacquin's species of *Anthericum* to *Phalangium* and, later (1813), transferred all of Jacquin's *Drimia* species to *Hyacinthus.* Before this date, Ker-Gawler had changed one species, which Poiret had placed in *Phalangium,* to yet another genus—*Albuca* (1805). In 1807 and 1821 Ker-Gawler transferred a further two species to *Albuca.* But one of the species in the group which Thunberg and Jacquin had called *Anthericum* was transferred (1808) to *Drimia* so that, for the first time, problems had been recognised in separating the group with spreading perianth segments (*Anthericum* of Thunberg) from that with reflexed perianth segments (*Drimia* of Jacquin).

The next major step was when Steinheil (1834) recognized that a new genus was required for some of the bulbous species within the group with spreading perianth segments to differentiate them from the quite distinct genera to which they had been attached—*Anthericum* and *Ornithogalum.* He gave the name *Urginea* to both European and South African species. *Urginea* and *Drimia* have remained the most widely accepted names for the two main groups of bulbous species with spurred bracts.

One important contribution in the mid-eighteenth century was that of Kunth (1843), who treated most species of both *Urginea* and *Drimia* as species of *Idothea,* although several of the former were included in *Ornithogalum.*

Harvey (1844) described a new genus, *Litanthus,* allied to *Urginea,* but with a well-developed oblong perianth tube. Only a single species (*L. pusillus*) has been recognized in this genus.

Hooker (1867) published Harvey's manuscript name *Bowiea.* Hooker commented that "in botanical characters (it was) allied to *Drimia* and *Scilla*". Its affinities with *Drimia* have been largely ignored since then, however. The genus has continued to be known by only one species in South Africa, although a second species was described from tropical Africa.

A further genus, attributed by the present author to this group, was described by Baker in 1873—*Schizobasis.* Baker correctly identified it as related to *Bowiea.*

In the *Flora Capensis* Baker recognised 22 species of *Drimia* of which he had described thirteen himself, and 27 species of *Urginea* of which he had described or made new combinations for all but three. In *Schizobasis* he recognised four species.

Since Baker, only two further genera have been described in this group—*Urgineopsis* and *Thuranthos*. Compton (1930) separated *Urgineopsis* from *Urginea* due to its greater degree of perianth fusion, but Adamson (1942) disagreed and placed it under *Urginea*. Wright (1916) described *Thuranthos* for a single species (*T. macranthum*) which Baker had treated as a species of *Drimia*. Dyer (1964) described a second species in *Thuranthos*.

The most recent evaluation of the generic concepts of this group is that of Mauve (in Dyer, 1976) who recognised: *Drimia* (15 South African species); *Urginea* (about 100 species from Europe, Asia and Africa, with about 40 in South Africa); *Litanthus* (endemic to South Africa, 1 species); *Rhadamanthus* (endemic to southern Africa, 9 species); *Thuranthos* (endemic to South Africa, 2 species); *Bowiea* (1 or 2 species from South Africa to tropical E. Africa) and *Schizobasis* (1 species in South Africa and further north).

TABLE 1.
Principle characters employed in separating *Urgineopsis*, *Thuranthos*, *Drimia* and *Urginea*.

Genus	Perianth reflexed	Perianth tube	Filaments	Flowers pendulous
Urgineopsis	no	distinctly fused	simple	no
Thuranthos	yes	more or less free	complex	yes
Drimia	yes	fused	simple	yes or no
Urginea	no	fused or free	simple	rarely

Rhadamanthus was regarded by Nordenstam (1970) as very close to *Urginea*, but separable because the anthers dehisce either by an apical pore or by a slit initiated at the apex. In all species of the other genera dehiscence is by a longitudinal slit. This view is accepted by the present author.

Litanthus is very readily recognisable by having one or two flowers in the inflorescence and by the perianth tube which is very much longer than the segments and more or less cylindrical.

Schizobasis is separable from *Bowiea* in being wiry rather than succulent and in having a marcescent perianth. But these two genera are very close to one another.

The position of *Urginea*, *Urgineopsis*, *Drimia* and *Thuranthos* requires re-evaluation. Table 1 indicates the principal differences.

The complex filaments of *Thuranthos* consist of a flattened basal part and terete distal part, with the filaments arching out round the ovary and connivent above. This character appears likely to be a significant one and has been greatly stressed by Dyer (1964). However, as Dyer pointed out, there is considerable similarity between the two species with this type of filament and certain other species (*U. indica* and *U. basutica*) which are generally placed in *Urginea*. The plants put into *Thuranthos* and these two species of *Urginea* form a natural group of plants, differring in size and number of flowers and in capsule shape. The two members of this group placed in *Urginea* (*U. indica* and *U. basutica*) differ from other species of *Urginea* only in having reflexed perianth segments and pendulous flowers, which are not considered sufficient grounds for separating them from *Urginea*. Therefore, in order to place these species together with *Thuranthos*, it becomes necessary to reduce *Thuranthos* to synonymy under *Urginea* or to place *U. indica* and *U. basutica* in *Thuranthos;* the former is preferred by the present author.

Urgineopsis has been dealt with by Adamson (1942). Adamson pointed out that although *Urginea* is generally considered to have free perianth segments, there are species with a degree of fusion comparable with that in *Urgineopsis*. The species mentioned by Adamson as having markedly fused perianth segments are *U. pygmaea*, *U. dregei* and *U. arenosa*. The present author considers *Urgineopsis salteri* (the only species of *Urgineopsis*) as conspecific with *Urginea tenella* (treated in this paper as a synonym for *Drimia modesta*), a species in which there is a considerable range in the fusion of the perianth.

The differences between *Urginea* and *Drimia*, when *Thuranthos* and *Urgineopsis* are included in the former, become less significant. The principal differences in the literature are the degree of fusion of the perianth, the tendency of the stamens to be connivent in *Drimia* and the reflexed perianth of *Drimia*. As stated above the degree of fusion of the perianth cannot be regarded as a generic character on its own, although *Litanthus* is partly defined on these grounds. The other two characters are present in *Urginea* too, if *Thuranthos* is included in *Urginea*. *Drimia* cannot, therefore, be separated from *Urginea*. The degree of fusion of the perianth of *Drimia* and *Urginea sensu* Baker also shows considerable overlap, and *D. anomala*, although treated as a species of *Drimia* by Baker (1897), has spreading perianth segments.

A conspicuous feature of most species of *Drimia* is the red bulb, but as this also occurs in a few species of *Urginea* (e.g. *U. maritima* and *U. sanguinea*), it cannot be regarded as a generic character. No other characters appear to be correlated with either a greater degree of fusion of the perianth or with the reflexed segments.

It is, therefore, necessary to reduce *Urginea* to synonymy under *Drimia*.

The possibility of applying to have the later generic name, *Urginea*, conserved against *Drimia* has been considered. *Urginea* is a well-known northern hemisphere genus with a species of some importance for its poisonous properties—*U. maritima*. However, in Africa *Drimia* is almost as wide-spread and well known, and the advantages of conserving the name *Urginea* do not appear to be sufficient to justify taking this step.

KEY TO THE GENERA IN THE *DRIMIA* GROUP

Aerial stem (inflorescence) simple
  Anthers opening by pores or by a slit initiated at the apex ...... **Rhadamanthus**
  Anthers opening by slits appearing simultaneously along the length of the anther
    Perianth tube long, cylindrical .... **Litanthus**
    Perianth segments free or, if fused, not forming a cylindrical tube .**Drimia**
Aerial stem (inflorescence) branched
  Aerial stem succulent. Perianth segments not adhering in fruit .... **Bowiea**
  Aerial stem wiry. Perianth segments adhering in fruit .... **Schizobasis**

Drimia Jacq. ex Willd.

Sp. Pl. **2:** 165 (1799). (Jacq., Ic. Pl. Rar. **2** (15): tt. 373–377 (1794), Coll. suppl. pp. 38–42 (1797).).

Urginea Steinh. in Ann. Sc. Nat., ser. 2, **1:** 321 (1834). Type species: *U. fugax* Steinh.

Idothea Kunth, Enum. Pl. **4:** 342 (1843). Type species not designated.

Sypharissa Salisb., Gen. Pl. 38 (1866). Type species not designated.

Thuranthos C. H. Wright in Kew Bull. 1916: 233 (1916). Type species: *T. macranthum* (Bak.) C. H. Wright (= *Drimia macrantha* (Bak.) Jess.).

Urgineopsis Compton in J. Bot., Lond. **68:** 107 (1930). Type species: *Urgineopsis salteri* Compton (= *Drimia modesta* (Bak.) Jess.).

Bulb epigeal or hypogeal, with imbricate (not tubular) scales. *Leaves* usually hysteranthous, terete or flattened, single to many, lacking markings. *Peduncle* usually solitary, appearing terminal, unbranched, erect, bearing an elongate or capitate inflorescence. *Bract* one to each flower; spurs always present on at least the lower bracts, often early caducous, usually flattened. *Pedicels* solitary, not articulated. *Perianth segments* free or fused, similar, usually spreading or reflexed, marcescent. *Filaments* epipetalous, usually linear or linear-lanceolate. *Anthers* basifixed or dorsifixed, dehiscing longitudinally. *Ovary* sessile, usually more or less ellipsoid, with several to many ovules per locule; stigma sometimes differentiated. *Fruit* a loculicidal capsule. *Seeds* angled or flattened, with a testa that does not adhere firmly to the endosperm.

Type species: Drimia elata Jacq. ex Willd.

Species concepts in Drimia

As in other members of the bulbous Liliaceae, quantitative characters have predominated among those employed by previous authors for separating species. However, there are a few qualitative characters which have been found to be useful, and it has generally been found possible to define more clearly demarcated species than in other genera previously dealt with.

In the following discussion some of the more important features are dealt with.

(1) Bulb characters

Bulbs are very variable according to soil conditions—especially the extent of water-logging. Plants growing in wet areas tend to have much looser bulb scales and not to develop (or to retain) membranous outer scales. Qualitative differences in bulbs which have been treated by previous authors as reliable for taxonomic purposes may, therefore, be strongly influenced by environmental factors and of little practical value. In *D. altissima*, the presence of epigeal bulbs and of hypogeal bulbs is not regarded by the present author as providing sufficient grounds for subdividing this species, although it is believed to be largely independent of the environment. It was not found possible to link this bulb character with other morphological characters or with geographical distribution. On the other hand, in *D. haworthioides*, the presence of an epigeal bulb is strongly isolated geographically and it is considered justified to separate it from *D. elata* on this character.

(2) Leaf characters

There are several leaf characters which are species constant; for example whether the leaves are flat or terete. But because most species are hysteranthous, leaf characters have been avoided as far as possible in the key. The number of leaves may be diagnostic, but wide variation does occur in some species (for example *D. exuviata*).

(3) Peduncle characters

Peduncles are very variable in size and in the number of flowers which they bear and do not afford any qualitative characters.

(4) Bract characters

Bracts vary in size, but tend to be fairly constant within each of the species recognised by the present author. The spurs show a similar constancy. But neither bracts nor spurs provide qualitative characters.

(5) Perianth characters

Previous authors have laid great emphasis on the degree of fusion of perianth segments. This character has not, however, been found to be very reliable in the large *D. modesta* complex although in other species it may be more so. Whether the segments reflex or are spreading may be reliable but it is important to bear in mind that whereas *D. elata*, for example, has persistently reflexed segments, *D. macrantha* and its allies have reflexed segments only at night.

Many of the species previously placed in *Drimia* have deep pink flowers as opposed to the more drab-coloured flowers of the species placed in *Urginea*. However, these species with pink flowers do also produce a small percentage of off-white flowers and *D. anomala* only occasionally has pale pink flowers.

(6) Filament character

There is one complex qualitative character of the filaments. One species, *D. macrantha* (= *D. nocturnalis*) has a very complex filament type in which there is a constriction near the centre and a flattened part below this while the distal part is terete.

(7) Anther characters

While most species have dorsifixed anthers, a few have basifixed anthers. This character is species constant.

(8) Stigma characters

The presence or absence of a distinct stigma (usually capitate) is generally characteristic of certain species.

KEY TO THE SPECIES OF *DRIMIA* IN SOUTH AFRICA

1 Anthers basifixed.
  2 Pedicels more than 20 mm long.
    3 Perianth up to 20 mm long. Filaments linear-lanceolate.
      4 Peduncles up to 500 mm long ....1. **indica**
      4a Peduncles at least 600 mm long ....2. **angustifolia**
    3a Perianth at least 22 mm long. Filaments terete in the distal half ....3. **macrantha**
  2a Pedicels less than 20 mm long.
    5 Flowers distinctly pendulous. Leaves hysteranthous ....7. **hyacinthoides**
    5a Flowers more or less spreading to erect. Leaves synanthous.
      6 Leaves usually fewer than 30, 1–2 mm broad.
        7 Pedicels at least 5 mm long ....4. **exuviata**
        7a Pedicels (of flowers) less than 5 mm long ....5. **duthieae**
      6a Leaves usually more than 30, less than 1 mm broad ....6. **multifolia**
1a Anthers dorsifixed.
  8 Perianth at least 7 mm long; segments usually recurved.
    9 Perianth fused, with a tube at least 20% of the length of the free segments.
      10 Inflorescence a more or less globose head ....8. **sphaerocephala**
      10a Inflorescence a more or less elongate raceme.
        11 Leaves usually synanthous, terete (SW Cape) ....9. **media**
        11a Leaves usually hysteranthous, flattened.
          12 Bulb epigeal. Perianth tube 2–4 mm long (eastern Cape) ....10. **haworthioides**
          12a Bulb hypogeal. Perianth tube 3–7 mm long (widespread) ....11. **elata**

9a Perianth free or with a tube less than 20 % of the length of the free segments.
13 Spur of lowest bract over 20 mm long. Leaves terete . . . 14. **macrocentra**
13a Spur of lowest bract up to 3 mm long. Leaves flattened.
14 Peduncle over 600 mm long. Bracts 5 mm or more long . . . . 13. **altissima**
14a Peduncle less than 600 mm long. Bracts 2 mm long or shorter . . . . 15. **sanguinea**
8a Perianth up to 7 mm long; segments usually spreading.
15 Inflorescence a more or less globose head.
16 Perianth segments recurved.
17 Bracts more than 6 mm long . . . . 8. **sphaerocephala**
17a Bracts less han 4 mm long . . . . 17. **marginata**
16a Perianth segments spreading . . . . 18. **depressa**
15a Inflorescence a more or less elongate raceme.
18 Bulbs with conspicuous apical bristles . . . . 19. **multisetosa**
18a Bulbs without conspicuous apical bristles.
19 Spur of lowest bract over 20 mm long.
Perianth usually over 6 mm long . . . . 14. **macrocentra**
19a Spur of lowest bract less than 10 mm long.
Perianth usually less than 6 mm long.
20 Peduncle up to 600 (rarely over 500) mm long.
21 Bracts 2 mm or more long.
22 Bulbs scales more or less white.
Peduncle 400–600 mm long. (eastern Cape) . . . . 12. **cooperi**
22a Bulb scales red or pink. Peduncle usually less than 400 mm long.
(Transvaal, Swaziland and Zululand) . 16. **delagoensis**
21a Bracts 1 mm or less long.
23 Pedicels up to 13 mm long.
24 Leaves synanthous, rigid, terete . . . 21. **anomala**
24a Leaves usually hysteranthous, fleshy, more or less flattened.
25 Spur of lowest bracts at least 2 mm long. Pedicels usually 5 mm or more long . . . . 22. **modesta**
25a Spur of lowest bracts up to 1 mm long. Pedicels usually up to 5 mm long . . . . 23. **minor**
23a Pedicels 15 mm or more long . . . . 20. **physodes**
20a Peduncle over 600 (rarely slightly under 600) mm long . . . . 13. **altissima**

1. **Drimia indica** (Roxb.) Jessop, comb. nov.

Scilla indica Roxb., Fl. Ind. **2:** 147 (1824). Type: not investigated; material from South Africa identified at Kew.

Urginea indica (Roxb.) Kunth, Enum. Pl. **4:** 333 (1843).

Urginea amboensis Bak. in Bull. Herb. Boissier, sér. 2, **3:** 665 (1903). Type: Ondonga, *Rautanen 773* (Z, holo.!).

Bulb 30–70 mm long; scales firmly packed to loose and spathulate. *Leaves* synanthous, 2–4, linear, 230–280 mm long, 4–5 mm broad, with transverse markings in purple towards the base, channelled above. *Peduncles* 280–500 mm long. *Bracts* early caducous. *Pedicels* (15–)25–30 mm long, spreading. *Perianth* pale brown with flesh-coloured margins, fused for *c*.1 mm, 9–12 mm long, reflexed. *Filaments* erect, connivent above the ovary, *c*.7 mm long, linear-lanceolate, tapering uniformly from the base, attached towards the base of the perianth; anthers basifixed, green, 3–4 mm long. *Ovary* ovoid, *c*.3,5 mm long, green; style *c*.6,5 mm long, capitate, subtruncate apically, 3-lobed. *Capsule* oblong ovoid, 16–25 mm long. *Seed* flat, elliptic to orbicular, 8–10 mm long.

D. indica occurs from Asia, through tropical Africa, and into the extreme northern South West Africa and, in the east, into the lowveld of the Transvaal and Zululand.

Occurs in grassveld. Flowers have been recorded in November. They open at night and emit a foetid smell.

This species belongs, on overall characters, to the group which includes also the following two species. On filament characters it is closest to *D. angustifolia* but can be separated on its longer, narrow leaves and smaller peduncles, bracts, pedicels and flowers. *Moll 4309*, from Ndumu Game Reserve (PRE), is atypical in having shorter pedicels (7 mm), but this may be a result of the younger age of the inflorescence.

The specimen from South West Africa (*Davies, Thompson & Miller 54* (PRE), from the Cunene Gorge) is in fruit, but appears to be a good match. The only other specimens seen from South West Africa are Rautanen collections from Ondonga.

The taxonomy and typification of this species has not been investigated in detail. But examination of a range of material at Kew suggests that the material from southern Africa is conspecific with Asian and tropical African material.

SELECTED SPECIMENS

SOUTH WEST AFRICA—1714 (Ruacana Falls): Cunene Gorge, *Davies, Thompson & Miller 54* (PRE).

TRANSVAAL—2431 (Acornhoek): Kruger National Park, E. of Muntshe Hill and Mlondozi Dam, *Mauve 4823* (PRE).

NATAL—2632 (Bella Vista): Ndumu Game Reserve, *Moll 4432* (PRE); Ndumu Hill, *Pooley 127* (NU).

2. **Drimia angustifolia** Bak. in Fl. Cap. **6:** 440 (1897).

Lectotype: Cape, Tarka, *Cooper 387* (K, lecto.!). Syntypes: Cape, Boschberg, *Tuck s.n.* sub *MacOwan 2211* (K!); Natal, Colenso, *Wood 4027* (K!, BOL!). *Tuck s.n.* sub *MacOwan 1835* (BOL! & GRA!) are of this concept of *D. angustifolia* and may be isolectotype material.

Urginea basutica Phill. in Ann. S. Afr. Mus. **16:** 306 (1917). Type: Lesotho, Leribe, *Dieterlen 854a* (PRE, holo.!, K!).

Bulb (30–)35–65(–75) mm long, 55 mm broad; scales firmly packed to loose and spathulate, whitish, globose to ellipsoid. *Leaves* usually hysteranthous, about 3 to a bulb, linear, 55–160 mm long, 7–13 mm broad, channelled on the face. *Peduncle* 600–900 mm long, with 4–9 flowers very laxly arranged. *Bracts* 7–8 mm long; the lowest early caducous. *Pedicels* (35–)50–60(–80) mm long, spreading in flower, ascending in fruit and becoming very much thickened. *Perianth* varying in colour from yellow-green to brownish-white, fused for up to 1–4 mm, 14–20 mm long, reflexed. *Filaments* erect, attached 2,5–4 mm above base of perianth, linear-lanceolate, 7–11 mm long; anthers green, 2,5–7 mm long, connivent, basifixed. *Ovary* narrowly obovoid, 5–8 mm long; style 6,5–9 mm long, clavate at first, expanding to subcapitate to 3-angled, subtruncate. *Capsule* oblong-obovoid to oblong, 25–40 mm long. *Seeds* flat, ellipsoid to obovate, sometimes asymmetrical, 9–10 × 5–7 mm.

Widespread in the eastern half of South Africa, including much of the Transvaal, the Orange Free State, Lesotho, the north-western Natal and the eastern parts of the Cape.

The habitat of *D. angustifolia* is extremely variable. Records include dry localities, such as stony koppies, but also wetter localities including "black soil along a stream" and even in marshy areas. Flowers are produced in early summer—October to December—and there is a single record for May. It is likely, but not certain, that the flowers only open at night.

In distribution, there is some overlap between this species and *D. macrantha*. Superficially, there is also a great deal of similarity despite the overall greater size of the latter. And the two are probably best separated on filament form. In the opinion of the present author, the possibility that further material may not support the separation of these two species should not be ignored.

Selected Specimens

TRANSVAAL—2329 (Pietersburg): Carlisle, near Blaauwberg Mtn, *De Winter 7163* (PRE).

—2528 (Pretoria): Willow Glen, *Strey 3925* (PRE).

—2529 (Witbank): 4 miles N. of Stofberg, *Mauve 4088* (PRE).

—2628 (Johannesburg): between Leslie and Devon, *Dyer 4181* (PRE).

ORANGE FREE STATE—2925 (Jagersfontein): Groenvlei, Fauresmith, *Kies 332* (PRE).

—2926 (Bloemfontein): near Eagle's Nest, Bloemfontein, *Potts s.n.* sub BLFU *1525* (BOL).

LESOTHO—2828 (Bethlehem): Leribe, *Dieterlen 854* (GRA, P, PRE, SAM).

NATAL—2829 (Harrismith): near Colenso, *Wood 4027* (BOL).

CAPE—2824 (Kimberley): Warrenton, *Acocks 1603* (PRE).

—3225 (Somerset East): Bester's Hoek, near Somerset East, *MacOwan 1835* (BOL, GRA).

3. **Drimia macrantha** (Bak.) Bak. in Engl. Bot. Jahrb. **15** (3) : 7 (1892).

Ornithogalum macranthum Bak. in J. Linn. Soc., Bot. **13:** 280 (1873). Type: "Cap. B. Spei," *Drège 2204* (BM, lecto.!, G!, L!).

Thuranthos macranthum (Bak.) C. H. Wright in Kew Bull. **1916:** 233 (1916).

Urginea macrantha (Bak.) Phill. in Ann. S. Afr. Mus. **16:** 305 (1917).

Thuranthos nocturnale R. A. Dyer in Flower. Pl. Afr. **36:** t.1439 (1964). Type: Cape, Grootfontein, *Acocks 18650* (PRE, holo.!).

Bulb 30–100 mm long, ovoid to globose; scales loose, spathulate to distinctly pedicellate. *Leaves* hysteranthous, 2–4, linear, (130)–420–600 mm long, 6–10 mm broad, channelled. *Peduncles* 300–1 300 mm long, with 12–30 flowers. *Bracts* 3–7 mm long, early caducous. *Pedicels* (33–)40–50 mm long, spreading. *Perianth* varying in colour from green to brown, if brown often with a green keel and margin, fused for 1–2 mm, (22–)28–33 mm long, reflexed at night. *Filaments* erect, connivent above the ovary, with the flat proximal part 6–12 mm long and the terete distal part 4–7 mm long; anthers basifixed, green, 3,5–5 mm long. *Ovary* ovoid to oblong, 4–5 mm long; style 14–22 mm long, capitate, subtruncate. *Capsule* oblong to ellipsoid, usually deeply 3-lobed, 25–40 mm long. *Seeds* flat, broadly elliptic, 6–14 mm long.

D. macrantha has only been recorded from the eastern Cape. It has been recorded from both the Karoo and from grassveld, with a single record from bush country. Soil conditions vary considerably. In dry areas it has been commonly found on sandy slopes but in damper areas it occurs on heavy turfs. It often grows in clumps. The flowers are produced during summer and open in the evening. A sweet scent has been reported.

This species belongs in the group with *D. indica* and *D. angustifolia*. Dyer (1964) distinguished *Thuranthos nocturnale* which he believed to be smaller and distinguishable by the shape of the leaves, stigma and capsule. There is, however, insufficient material of either leaves or capsules to make a detailed evaluation of these two characters and available evidence suggests that *T. nocturnale* is the dry area form of *D. macrantha*. These two forms are linked by a continuous range of intermediates for all characters for which there is sufficient material to judge.

For illustration see Flower. Pl. Afr. **36:** t.1439 (1964).

SELECTED SPECIMENS

CAPE—2823 (Griekwastad): Postmasburg, near Pretorius Vlei, *Pretorius s.n.* (PRE).
—3124 (Hanover): Wildfontein Station, *Acocks 16245* (PRE).
—3125 (Steynsburg): Grootfontein, *Acocks 18650* (PRE).
—3225 (Somerset East): Klyn Bruintjeshoogte, *MacOwan 1848* (SAM).
—3226 (Fort Beaufort): Tarka River, *Cooper 387* (TCD).

—3227 (Stutterheim): East London, upper end of Second Creek, *Dodd s.n.* sub *Galpin 7962* (PRE); near Komgha, *Flanagan 468* (BOL, GRA, K, PRE, SAM, Z).
—3228 (Butterworth): Kentani, *Pegler 79* (K, NU, PRE).
—3325 (Port Elizabeth): Baakens River Valley, *Archibald s.n.* (PRE).
—3326 (Grahamstown): Alicedale, *Cruden 211* (GRA).

4. **Drimia exuviata** (Jacq.) Jessop, comb. nov.

Anthericum exuviatum Jacq., Icones **2** (13): 18, t.415 (1794). Type: Jacq., Icones **2** (13): t.415 (1794).

Phalangium exuviatum (Jacq.) Poir., Encyc. **5:** 243 (1804).

Albuca exuviata (Jacq.) Ker-Gawl. in Curtis's bot. Mag. **22:** t.871 (1805).

Urginea exuviata (Jacq.) Steinh. in Ann. Sc. Nat., sér. 2, **2:** 330 (1834).

Ornithogalum exuviatum (Jacq.) Kunth, Enum. Pl. **4:** 369 (1843).

Sypharissa exuviata (Jacq.) Salisb., Gen. 38 (1866), comb. valid. non.

Anthericum filifolium Jacq., Icones **2** (15): 18, t.414 (1794). Type: Jacq., Icones **2** (15): t.414 (1794), possibly antedated by *A. filifolium* Thunb.

Phalangium filifolium (Jacq.) Poir., Encyc. **5:** 242 (1804).

Albuca filifolia (Jacq.) Ker-Gawl. in Bot. Reg. **7:** 557 (1821).

Urginea filifolia (Jacq.) Steinh. in Annls Sci. nat., sér. 2, **2:** 329 (1834).

Ornithogalum filifolium (Jacq.) Kunth, Enum. Pl. **4:** 369 (1843).

Sypharissa filifolia (Jacq.) Salisb., Gen. 38 (1866), comb. valid. non.

Anthericum spiratum Thunb., Prodr. 62 (1794). Type: "Cap. b. spei", *Thunberg s.n.* (UPS—*8413* and *8414*, microfiche!).

Anthericum fragrans Jacq., Hort. Schoenbr. **1:** 45, t.86 (1797). Type: Jacq., Hort. Schoenbr. **1:** t.86 (1797).

Phalangium fragrans (Jacq.) Poir., Encyc. **5:** 247 (1804).

Albuca fugax Ker-Gawl. in Bot. Reg. **4:** t.311 (1818), nom. nov. for *Anthericum fragrans* Jacq.

Urginea fragrans (Jacq.) Steinh. in Annls Sci. nat., sér. 2, **2:** 328 (1834).

Ornithogalum fragrans (Jacq.) Kunth, Enum. Pl. **4:** 366 (1843).

Sypharissa fragrans (Jacq.) Salisb., Gen. 38 (1866), comb. valid. non.

Urginea unifolia Duthie in Ann. Univ. Stell. **6A** (2): 8–9 (1928). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1891* (STE, holo.!).

Urginea flexuosa Adamson in Jl S. Afr. Bot. **8:** 240–241 (1942). Type: Cape Peninsula, Smitswinkel Bay, *Adamson 3099* (BOL, holo.!).

Bulb (20–)35–70 mm long, ovoid, usually solitary, characteristically with a few raised dark coloured transverse bars on the upper parts of the ensheathing neck of the bulb, sometimes with the scales very loosely arranged. *Leaves* synanthous, 1–10(–35), narrowly linear to terete, often spirally twisted, (150–) 200–350(–400) mm long, 1–2(–3) mm broad. *Peduncle* (120–)220–400(–600) mm long, with (10–)15–60 flowers. *Bracts* 2–7 mm long, sometimes auriculate; lowest spurs 4–9(–15) mm long. *Pedicels* 6–13 mm long, erect-spreading to ascending. *Perianth* white or greenish-white, sometimes mauve below, usually with a purple or green dorsal stripe (vein), fused for 1–1,5 mm, 8–12(–15) mm long; the segments linear-oblong to elliptic or slightly broader in the proximal half, rarely up to 7 mm broad, spreading or, less often, somewhat reflexed. *Filaments* 3–6 mm long, linear; anthers basifixed, 2–6 mm long, usually connivent. *Ovary* oblong-ellipsoid, 2,5–5 mm long; style 3–9 mm long; stigma minutely 3-lobed. *Capsule* ellipsoid, 8–13 mm long. *Seeds* flat, elliptic, 4–7 × 3–4 mm.

D. exuviata is widespread in the western Cape and extending into the eastern Cape as far as Grahamstown.

Occurs in areas differing widely in rainfall from the Richtersveld to the mountains of the south-western Cape with rainfalls from probably under 100 mm p.a. to over 2 000 mm. It has been recorded from lime soils but also from sandy flats and from mountain slopes derived from Table Mountain Sandstone. Flowers are produced from September throughout summer. The flowers are scented.

The transverse bars on the upper parts of the bulb scales are highly characteristic, although an occasional specimen lacks them. In *Hutchinson 301*, from near Saldanha Bay (PRE), the distal membranous portion of the bulb scales is exceptionally long, being nearly 200 mm in length, with over 20 bars to the scale.

Flowers are generally readily recognised as belonging to a member of this group (with *D. duthieae* and *D. multifolia*) because of the conspicuous dorsal stripe on the perianth segments. In a few specimens the style is declinate (e.g. *Leipoldt s.n.* sub NBG *73218*), but this character presents difficulty in its identification as it appears in only a few flowers in each inflorescence and appears to be a temporary phenomenon associated with a particular stage in the development of the flower. This is a characteristic of *D. multifolia*, but has not been observed in *D. duthieae*.

For illustration see Kidd, M. M. (1950), *Wild flowers of the Cape Peninsula*, pl. 71, fig. 4 and pl. 10, fig. 4.

SELECTED SPECIMENS

CAPE—2917 (Springbok): Steinkopf, *Meyer s.n.* sub *Marloth 13320* (PRE).
—3018 (Kamiesberg): Khamiesberg, *Esterhuysen 23724* (BOL).
—3118 (Vanrhynsdorp): Giftberg, *Hall 3906* (NBG).
—3119 (Calvinia): Nieuwoudtville, *Galpin 10509* (PRE).
—3217 (Vredenburg): north of Saldanha Bay, *Hutchinson 301* (BOL, GRA, PRE).
—3218 (Clanwilliam): De Hoek, *Compton 14992* (NBG).
—3219 (Wuppertal): Middelberg, *Esterhuysen 7225* (BOL).
—3317 (Saldanha): Kreeftebaai, *Rourke 587* (NBG).
—3318 (Cape Town): Stellenbosch Flats, *Duthie s.n.* sub STE *1891* (BOL, STE).
—3319 (Worcester): Michells Pass, *Esterhuysen 20723* (BOL, PRE).
—3320 (Montagu): Donkerkloof, *Compton 18492* (NBG).

—3321 (Ladismith): Muiskraal Vlei near Garcias Pass, *Galpin 4747* (K, PRE).
—3325 (Port Elizabeth): Port Elizabeth, *Drège 294* (GRA).
—3326 (Grahamstown): Rockcliffe, near Sidbury, *Daly 803* (GRA, PRE).
—3418 (Simonstown): Claremont, *Schlechter 446* (P).
—3419 (Caledon): Bot River, *Van Niekerk 651* (K, PRE).
—3420 (Bredasdorp): Bontebok Park, Bredasdorp, *Martin 584* (NBG).

5. **Drimia duthieae** (Adamson) Jessop, comb. nov.

Urginea duthieae Adamson in Jl S. Afr. Bot. **8:** 239 (1942). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1790* (STE, holo.!, K!); nom. nov. for *Urginea ecklonii sensu* Duthie in Ann. Univ. Stell. **6A** (2): 6 (1928), non Bak.

Bulb ovoid to globose, 10–15 mm long. *Leaves* synanthous, solitary, terete, 150–250 mm long. *Peduncles* 130–220 mm long, with 3–8 flowers in a more or less capitate arrangement. *Bracts* 3–4 mm long; lowest bracts with spurs up to 6 mm long. *Pedicels* 2–4 mm long, spreading to ascending. *Perianth* white with a green or brown dorsal stripe, fused for less than 1 mm, 7–8 mm long, ovate to elliptic, spreading. *Filaments* sublinear, *c*.5 mm long; anthers basifixed, *c*.1,5 mm long, probably connivent. *Ovary* ellipsoid, 4–5 mm long; style 2–3 mm long; stigma minutely 3-lobed. *Capsule* ovoid, 5–11 mm long.

Restricted to the Stellenbosch-Cape Peninsula area of the south-western Cape.

Habitat recorded as ironstone flats. Flowers are produced in October and November, but their time of opening and whether or not they are scented does not appear to have been recorded.

The basifixed anthers and dorsal stripe to the perianth segments indicates a very close relationship with *D. exuviata.* It is almost entirely on size that they are separated (with some hesitation) and on the slightly capitate inflorescence.

SELECTED SPECIMENS

CAPE—3318 (Cape Town): N'Dabeni, *Salter 8698* (BOL, NBG, SAM); *Adamson 3270* (K, PRE, SAM); Stellenbosch Flats, *Duthie s.n.* (BOL); *Duthie s.n.* sub STE *1790* (K, STE, STE-U).

6. **Drimia multifolia** (G. J. Lewis) Jessop, comb. nov.

Urginea multifolia G. J. Lewis in Ann. S. Afr. Mus. **40:** 9 (1952). Type: 27 miles south of Springbok, *Lewis 2302* (SAM, holo.!).

Bulb 20–40 mm long, ellipsoid to globose, with whitish scales; outer membranous scales of herbarium material often pink distally, forming a 1-scaled sheath around the leaves with transverse barring. *Leaves* synanthous, (30–) 40–50, terete, often spirally twisted, *c*.100–200 mm long, *c*.0,2 mm broad. *Peduncles* 50–200 mm long, with *c*.10–15 flowers. *Bracts* 1,5–2(–4) mm long; the lowest with spurs up to 5 mm long. *Pedicels* 4–8 mm long, erect-spreading. *Perianth* white, often pinkish on the dorsal surface, with a very prominent green or brown-purple vein, fused for less than 1 mm, 10–12 mm long; segments ellipsoid, 4–5 mm broad. *Filaments* 4–5 mm long, linear-lanceolate; anthers basifixed, *c*.3 mm long. *Ovary* oblong-ellipsoid, *c*.4 mm long; style 3 mm long, often declinate; stigma slightly 3-lobed. *Fruit* unknown.

Recorded from the western Cape, especially from Namaqualand and the extreme western Karoo.

Occurs in dry areas, but virtually nothing has been recorded of its habitat or field characters. Flowers are sweet scented.

This species is very close to *D. exuviata*, with similarly barred bulb scales and perianth segments with prominent dorsal stripe. The declinate style has also, but not so frequently, been recorded in that species. The large number of leaves, although not entirely satisfactory, is the principal character for separating these species.

For illustration see Ann. S. Afr. Mus. **40:** 9 (1952).

SELECTED SPECIMENS

CAPE—2917 (Springbok): Springbok, *Van Heerde s.n.* (BOL); 8½ miles S.W. of Springbok, *Acocks 19563* (K, PRE).

—3017 (Hondeklipbaai): I'Aus, *Schlechter 11222* (GRA, PRE); 27 miles S. of Springbok, *Barker 6310* (NBG).

—3018 (Kamiesberg): De Kom (now farm Karas), 3 miles from Leliefontein in the Khamiesbergen, *Leipoldt 3378* (BOL).

—3119 (Calvinia): between Oorlogskloof and Papkuilsfontein, *Leipoldt s.n.* (BOL); Menzieskraal, near Nieuwoudtville, *Markotter s.n.* sub STE-U *18989* (STE).

—3220 (Sutherland): 20 miles N.E. of Sutherland, *Acocks 17204* (PRE).

7. **Drimia hyacinthoides** Bak. in J. Bot., Lond. **1874:** 6–7 (1874). Type: Cape, Woest Hill, near Grahamstown, *MacOwan 1465* (GRA, lecto.!, K!).

Bulb *c*.60 mm long, more or less globose; scales very loose, probably sometimes reddish but more often white. *Leaves* hysteranthous, few, linear to oblong, 100–120 mm long, 14–24 mm broad, glabrous. *Peduncles* 200–500(–700 in fruit) mm long, with (20–)30–40(–50) flowers. *Bracts* 3–4 mm long; lowest spurs 3–6(–8) mm long. *Pedicels* lilac or greyish-mauve coloured with a white dorsal stripe, fused for *c*.1–2 mm, 9–12 mm long; the flowers pendulous, linear-campanulate. *Filaments* linear, connivent above the ovary, *c*.2,5 mm long; anthers basifixed, 2,5–3 mm long. *Ovary* globose to ovoid, 3–4 mm long; style 4–5 mm long, capitate. *Capsule* ellipsoid, 7–12(–16) mm long. *Seeds* flat, rather irregular in outline, 6–7 × 2–4 mm.

Recorded only from a small part of the eastern Cape, including Alexandria, Fort Beaufort and near East London.

Occurs in grassveld, sometimes in the shelter of bushes, and sometimes in what Acocks (1953) called "False Karroid Broken Veld". No scent has been recorded.

The affinities of this group are not clear. In some ways the shape of the flower is reminiscent of *Rhadamanthus* rather than of *Drimia*, but there are no other characters linking it with that genus and the anthers dehisce longitudinally. Within *Drimia* there are few species with basifixed anthers and, if this is an important character, it suggests a relationship with the *D. macrantha* group, but again there are no further reasons for linking it to that group except, perhaps, the pendulous flowers. It must, therefore, be concluded that this species is rather isolated.

For illustration see Batten, A. & Bokelmann, H. (1966), *Wild flowers of the eastern Cape*, pl. 11, fig. 5.

SELECTED SPECIMENS

CAPE—3226 (Fort Beaufort): Fort Beaufort, Kromo Mouth Trig. Beacon, *Acocks 20106* (PRE).

—3227 (Stutterheim): Nahoon River, *Wood s.n.* sub *Galpin 3152* (BOL, PRE); Slippery Drift, *Smith s.n.* sub NBG *77375* (NBG).

—3326 (Grahamstown): between Kap River and Trapps Valley, *Dyer 3390* (PRE); 7 miles from Grahamstown on Gletwyn, *Dyer 3306* (BOL, PRE); Alexandria, near Bushmans River Pont, *Archibald 6137* (PRE).

8. **Drimia sphaerocephala** Bak. in Fl. Cap. **6:** 441 (1897). Type: Transvaal, Concession Creek near Barberton, *Galpin 1020* (K, lecto.!, BOL!, SAM!).

Drimia neriniformis Bak. in Fl. Cap. **6:** 442 (1897). Type: Natal, Van Reenen, *Wood 4794* (K, lecto.!, NH!, P!, PRE!, Z!).

Drimia capitata Bak. in Fl. Cap. **6:** 442 (1897). Lectotype: Cape, Bazeia, *Baur 1160* (K!). Syntype: Orange Free State, *Cooper 885* (K!).

Bulb 20–30(–40) mm long, ovoid to subglobose; scales often rather loose, pale coloured (yellowish rather than pink in herbarium material). *Leaves* usually hysteranthous, usually *c*.3–4, linear, acute, 115–170 mm long, 6–8 mm broad, ciliate on the margins. *Peduncles* (200–)300–500(–700) mm long, with 15–20 flowers in a capitate arrangement. *Bracts* 6–9 mm long; lowest spurs 3–12 mm long. *Pedicels* (3–)7–10(–20) mm long, erect-spreading to spreading. *Perianth* very variable in colour (white, pink, mauve, greenish yellow, or light green) but usually white, fused for (1–)2–3(–5) mm, (6–)8–12(–15) mm long, reflexed. *Filaments* greenish or white, 4–8(–10) mm long, linear; anthers green, dorsifixed, 1–1,5 mm long. *Ovary* ellipsoid to ovoid, 1,5–3 mm long; style 4,5–9 mm long, capitate. *Capsule* ellipsoid, 7–8 mm long.

Presently known from most of the Transvaal, Swaziland, Lesotho, Natal and the extreme eastern part of the Orange Free State. A single record also exists for the Cape (excluding the type of *D. capitata*).

The most frequent habitat records suggest a strong preference for damp areas—"black turf grassveld near stream", marshy ground and shallow wet sandy soil being reported. Other records indicate, however, that it does also occur in drier grassveld, especially on slopes.

Although most species formerly placed in *Drimia* had reddish bulbs, this species, because of its fused and reflexed perianth segments was also placed there. A single specimen (*Devenish 257* from Oshoek; PRE) is atypical in having a distinctly red bulb—but it is possible that this specimen may be a hybrid with *D. elata*.

Baker (1897) separated *D. capitata* from *D. sphaerocephala* and *D. neriniformis* on the length of the pedicels, and *D. neriniformis* from *D. sphaerocephala* on the diameter of the heads. Fig. 1 indicates the lack of correlation between these characters and the difficulty encountered in trying to apply Baker's criteria.

Selected Specimens

TRANSVAAL—2230 (Messina): Messina, *Moss & Rogers 1396* (BOL).
—2328 (Baltimore): Blaauwberg, *Esterhuysen 21424* (BOL).
—2430 (Pilgrim's Rest): The Downs, *Rogers 22043* (Z); Graskop, *Galpin 14655* (PRE).

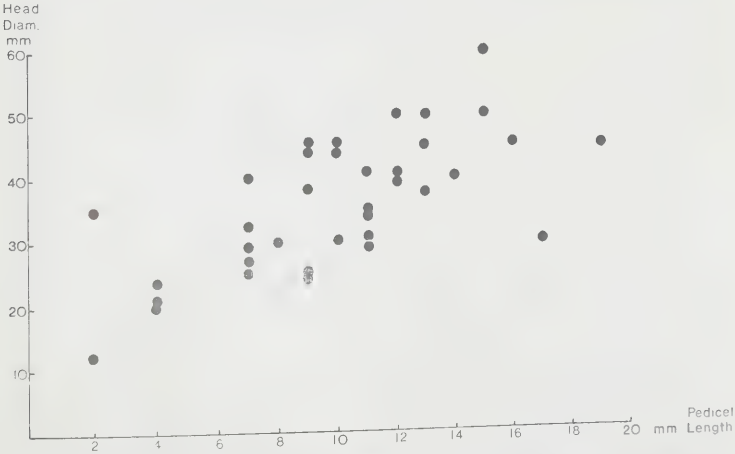

Fig. 1.

Diagram to illustrate variation in diameter of flowering head and length of pedicel in *Drimia sphaerocephala*. Based on herbarium specimens.

—2530 (Lydenburg): Dullstroom, *Galpin 13043* (PRE); Mount Anderson, *Smuts & Gillett 2417* (PRE); Belfast, *Pole Evans s.n.* (PRE).
—2531 (Komatipoort): Back of Concession Creek, *Galpin 1020* (BOL, SAM).
—2629 (Bethal): Spitskop, *Pott s.n.* sub Tvl Mus. *15238* (PRE).
—2730 (Vryheid): Oshoek, *Devenish 257* (PRE).
SWAZILAND—2631 (Mbabane): Forbes Reef Road, *Compton 30265* (NBG, PRE).
ORANGE FREE STATE—2828 (Bethlehem): Besters Vlei, *Flanagan 1934* (PRE).
—2829 (Harrismith): Rensburgskop, *Jacobsz 294* (PRE).
LESOTHO—Lithayaneng, Leribe, *Dieterlen 741* (P, PRE, SAM).
NATAL—2828 (Bethlehem): Royal Natal National Park, *Trauseld 95* (PRE).
—2829 (Harrismith): Van Reenen, *Wood 5860* (PRE).
—2929 (Underberg): Giants Castle Game Reserve, *Skead 59* (NU).
—3029 (Kokstad): Weza, Alfred, *Strey 6371* (PRE).
—3030 (Port Shepstone): Highflats, *Shirley 319* (NU).
CAPE—St Bernards, Griqualand East, *Barker 7977* (NBG).

9. **Drimia media** Jacq. ex Willd., Sp. Plant. **2:** 166 (1799). Type: Jacq., Icones **2** (16): t.375 (1795).

Drimia media Jacq. (nom. invalid.), Icones **2** (16): 15, t.375 (1795); generic name not validly published.

Hyacinthus medius (Jacq. ex Willd.) Poir., Encyc., Suppl. **3:** 120 (1813).

Idothea media (Jacq. ex Willd.) Kunth, Enum. Pl. **4:** 343 (1843).

Bulb (30–)35–60(–95) mm long, ovoid; scales tightly packed, red. *Leaves* usually synanthous, but often poorly developed at anthesis and rarely only slightly in evidence at anthesis, 3–10(–20), hard, rigid, terete, 80–150(–400 usually only after anthesis) mm long, 1,5–4 mm broad. *Peduncles* (300–)350–450(–600) mm long, with 20–35 flowers in an elongate raceme. *Bracts* 1–2,5 mm long; the lowest with a spur 1–1,5 mm long, but early caducous. *Pedicels* (5–)8–9(–10) mm long, spreading or erect-spreading. *Perianth* dull purplish, fused for 3–4,5 mm, 10–13(–16) mm long; segments reflexed in daylight. *Filaments* attached at mouth of perianth, linear-lanceolate, tapering slightly from the base, *c.*6 mm long, white; anthers dorsifixed, 0,75–2 mm long. *Ovary* ovoid, 2–3 mm long; style 6–8 mm long, capitate, 3-lobed. *Capsule* oblong to obovoid, 9–11 mm long. *Seeds* somewhat flattened, narrowly ellipsoid, 6–7 mm long.

Occurs in the south-western Cape from the Cape Peninsula and Saldanha Bay along the southern coast to Knysna.

Common and occurring in most of the principal habitats along the narrow coastbelt. Grows in the sand close to the sea, but also on mountain slopes. The flowers do not open only at night.

D. media is closely related to *D. elata*. The only way in which it can be separated is by its synanthous terete hard leaves. Hysteranthous plants can, with a very high degree of certainty, be placed in *D. elata*.

For illustration see Kidd, M. M. (1950), *Wild flowers of the Cape Peninsula*, pl. 9, fig. 9.

SELECTED SPECIMENS

CAPE—3217 (Vredenburg): Saldanha Bay, *Marloth 7956* (PRE).

—3318 (Cape Town): Camps Bay, Lower Blinkwater, *Cassidy 148* (NBG).

—3319 (Worcester): Great Drakenstein, *Esterhuysen 21348* (BOL); Klaasvoogds, *Esterhuysen 22711a* (BOL).

—3418 (Simonstown): Klaver Valley, *Salter 5930* (BOL); foot of Sir Lowrys Pass, *Stokoe s.n.* sub SAM *65755* (SAM).

—3419 (Caledon): Vogelgat, *Schlechter 10404* (BOL, GRA, L, P, PRE).

—3421 (Riversdale): Gouritz River Bridge, *Hall 971* (NBG).

—3422 (Mossel Bay): Belvedere, *Duthie 773* (BOL, GRA).

—3423 (Knysna): Knysna, *Breyer s.n.* sub Tvl Mus. *23581* (PRE).

"Cape," *Drège 1496* (L, P).

10. **Drimia haworthioides** Bak. in Gdnrs' Chron. 1875, **3:** 366 (1875). Type: near Graaff-Reinet, *Bolus 40* (K, holo.!).

Bulb epigeal, *c*.20–30 mm long; scales loose, pedicellate, purplish-grey. *Leaves* usually hysteranthous, rarely exceeding 10, lanceolate, usually ciliate on the margins, 60–80 mm long, 10–15 mm broad. *Peduncles* 200–400 mm long, with 15–30 flowers. *Bracts* 1–4 mm long; spur of lowest bracts *c*.1 mm long, early caducous. *Pedicels* 3–8 mm long, erect-spreading. *Perianth* greenish or greenish-brown, 10–15 mm long, fused for 2–4 mm; segments reflexed. *Filaments c*.7 mm long, linear, sometimes (?always) mauve; anthers dorsifixed, *c*.1 mm long; style 5–7 mm long, capitate. *Capsule* ellipsoid, 7–10 mm long. *Seeds* unknown.

Restricted to a small part of the eastern Cape, including Graaff-Reinet, Humansdorp and Grahamstown.

Occurs in grassveld, sometimes among rocks.

The aerial parts are similar to those of *D. elata* although generally with fewer flowers. The pedicellate bulb scales are the only apparently reliable way of distinguishing these species.

Two secimens from outside the accepted range of *D. haworthioides* require comment. *Wisura 1382* (NBG), from 14 miles W. on Witteberg road, about 3 miles S. of Laingsburg, has loose scales but probably not as loose as in *D. haworthioides*, ciliate hysteranthous leaves measuring 130–160 × 11–13 mm, and a similar perianth although the segments are a little narrower. The bulb scales are red. *Salter s.n.* sub NBG *1193/37* (BOL), from 10 miles W. of Ladismith (Cape), is similar but lacks a bulb. Both flower in summer, as in *D. haworthioides.* Further information is needed to determine the position of these two plants and they have not been allocated to a species in the present work.

SELECTED SPECIMENS

CAPE—3224 (Graaff-Reinet): Graaff-Reinet, *Francis 56* (BOL).
—3325 (Port Elizabeth): Loerie, *Dix 186* (GRA); Zwartkops River, *Zeyher 520* (SAM).
—3326 (Grahamstown): Alicedale, *Cruden 182* (GRA); Gletwyn, *Dyer 3372* (PRE); Port Alfred, *Rogers s.n.* sub GRA *1685* (BOL, GRA).
—3424 (Humansdorp): Jeffreys Bay, *Duthie s.n.* sub *Fourcade 3295* (Fourcade collection, BOL).

11. **Drimia elata** Jacq. ex Willd., Sp. Plant. **2:** 165 (1799). Type: Jacq., Icones **2** (15): t.373 (1794).

Drimia elata Jacq. (nom. invalid.), Icones **2** (15): 15, t.373 (1794); generic name not validly published.

Hyacinthus elatus (Jacq. ex Willd.) Poir., Encyc., Suppl. **3:** 120 (1813).

Idothea elata (Jacq. ex Willd.) Kunth, Enum. Pl. **4:** 343 (1843).

Drimia pusilla Jacq. (nom. invalid.), Icones **2** (14): 15, t.374 (1794); generic name not validly published.

Drimia pusilla Jacq. ex Willd., Sp. Plant. **2:** 165 (1799). Type: Jacq., Icones **2** (14): t.374 (1794).

Hyacinthus pusillus (Jacq. ex Willd.) Poir., Encyc., Suppl. **3:** 120 (1813).

Idothea pusilla (Jacq. ex Willd.) Kunth., Enum. Plant. **4:** 344 (1843).

Drimia ciliaris Jacq. (nom. invalid.), Icones **2** (16): 15, t.377 (1795).

Drimia ciliaris Jacq. ex Willd., Sp. Plant. **2:** 165 (1799). Type: Jacq., Icones **2** (16): t.377 (1794).

Hyacinthis ciliaris (Jacq. ex Willd.) Poir., Encyc., Suppl. **3:** 120 (1813).

Idothea ciliaris (Jacq. ex Willd.) Kunth, Enum. Pl. **4:** 343 (1843).

Drimia purpurascens Jacq.f., Eclog. 48, t.30 (1812). Type: Jacq.f., Eclog. 48, t.30 (1812).

Idothea purpurascens (Jacq.f.) Kunth, Enum. Pl. **4:** 342 (1843).

Drimia villosa Lindl. in Bot. Reg. **16:** t.1346 (1830). Type: "received from Mr Tate from the Cape", Bot. Reg. **16:** t.1346 (1830).

Idothea villosa (Lindl.) Kunth, Enum. Pl. **4:** 343 (1843).

Idothea humilis Bergius ex Kunth, Enum. Pl. **4:** 344 (1843). Type: not known.

Drimia altissima Hook.f. in Curtis's bot. Mag. **91:** t.5522 (1865), nom. illegit., non L.f. Type: origin not known (K, holo.!).

Drimia alta R. A. Dyer in Flower. Pl. S. Afr. **23:** t.890 (1943), nom. nov. for *Drimia altissima* Hook.f.

Drimia robusta Bak. in Saund., Ref. Bot. **3:** t.190 (1870). Type: "Cape Colony from Cooper," Hort Saunders 4404 (K, holo.!).

Idothea robusta (Bak.) Kuntze, Rev. Gen. **2:** 712 (1891).

Drimia burchellii Bak. in Saund., Ref. Bot. **3,** app. 2 (1870). Type: Cape, *Burchell 4769* (K, lecto.!); a specimen labelled *Burchell 4969* (TCD!) may be an isotype; *Zeyher 954* (K!).

Idothea burchellii (Bak.) Kuntze, Rev. Gen. **2:** 712 (1891).

Drimia concolor Bak. in J. Linn. Soc., Bot. **11:** 422 (1871). Type: "Cap. B. Spei (e tab. ex exemplo in Hort. Kew. anno 1823 culto depicta descript)."

Idothea concolor (Bak.) Kuntze, Rev. Gen. **2:** 712 (1891).

Drimia rigidifolia Bak. in J. Linn. Soc., Bot. **11:** 420 (1871). Lectotype: "Somerset, *Bowker 225!*" (K!). *Syntype:* "Cap. B. Spei, *Harvey* ex hort. Baronis Ludwigii!" (not seen).

Idothea rigidifolia (Bak.) Kuntze, Rev. Gen. **2:** 712 (1891).

?Drimia rudatisii Schltr. in Engl. Bot. Jahrb. **40:** 89 (1907). Type: "Natal: an feuchten, schattigen Orten bei Fairfield (Alexandra County), c.750 m ü. M. (H. Rudatis n. 79)"; not located.

Bulb (30–)40–100(–120) mm long, usually more or less ovoid, reddish, sometimes with a sheath above up to 120 mm long, often densely colonial, hypogeal; scales loosely arranged or, more frequently, densely packed. *Leaves* almost always hysteranthous, (3–)8–15, linear or linear-lanceolate, (360–)400–440(–1 200) mm long, (18–)25–55(–70) mm broad, glabrous or villous on the surfaces, ciliate on the margins. *Peduncles* (220–)400–1 200(–1 800) mm long, with 30–100(–200) flowers in an elongate (often rather dense) raceme. *Bracts* (1–)4–13(–32) mm long; the lowest with a spur (3–)5–15(–23) mm long. *Pedicels* (3–)5–10(–20) mm long. *Perianth* very variable in colour (transparent green, mauve, white striped with brown, silvery white, pink, purple) but most frequently pinkish with or without a darker or greenish-brown dorsal stripe, (9–)12–16(–23) mm long, fused for 3–6(–7) mm; segments reflexed in the daylight. *Filaments* (6–)7–11 mm long, sublinear, tapering from the base, purple or white or white above and purple below; anthers dorsifixed, 1–2 mm long, dark purple or dark blue-grey. *Ovary* ovoid, 2,5–4 mm long, green; style 8–13 mm long, capitate, minutely 3-lobed. *Capsule* ellipsoid, 13–16 mm long. *Seeds* winged, angled, 6–7 × 2–3 mm.

D. elata is widespread in South Africa, except for the dry regions.

It has been recorded from a wide range of habitats, but most frequently from open grassveld, especially near water. Less often it occurs actually in swamps or among rocks. Flowers are produced in summer.

As recognised in this work, *D. elata* includes a wide range of forms, but the short perianth tube, the reflexed segments, hysteranthous sublinear leaves and red bulb are characteristic. Species treated here as synonymous with *D. elata*, but given separate status by previous authors, have been identified by having shorter pedicels (*D. burchellii*) or often by differences in the leaf indumentum. However, as leaves are usually absent, there must remain a large amount of unidentifiable herbarium material. It has, moreover, been found that there is no correlation between the distribution of hairs and inflorescence or floral characters. Both glabrous and villous leaves occur over most of the geographical range of the species.

A few specimens, which may belong here, differ sufficiently to cause difficulty in identification. *Dyer 3143* (PRE) from Pretoria and *Van der Merwe 2478* (PRE) from Rooiberg (Thabazimbi) differ, for example, in having pale-coloured scaly bulbs, but otherwise closely resemble *D. elata*. *Barker 10194* (NBG) from 3 miles N. of Vanrhynsdorp is exceptionally small, with most measurements just below the minima in the description given here.

For illustrations see Kidd, M.M. (1950), *Wild flowers of the Cape Peninsula*, pl. 23, fig. 5 and Flower. Pl. S. Afr. **23:** t.890 (1943).

SELECTED SPECIMENS

BOTSWANA—2425 (Gaberones): Kanye, *Hillary & Robertson 609* (PRE).
TRANSVAAL—2229 (Waterpoort): 8 miles N of Louis Trichardt, *Van Vuuren 1264* (PRE).
—2329 (Pietersburg): Louis Trichardt, *Breyer s.n.* sub Tvl Mus. *24378* (PRE).
—2330 (Tzaneen): Magoebas Kloof, *Compton 18096* (NBG).
—2427 (Thabazimbi): Rooiberg, *Van der Merwe 2803* (PRE).
—2430 (Pilgrim's Rest): Mariepskop, *Killick & Strey 2404* (PRE).
—2527 (Rustenburg): Hennops River, *Leendertz s.n.* sub Tvl Mus. *8172* (PRE).
—2528 (Pretoria): Baviaanspoort, *Dyer 3143* (PRE).
—2529 (Witbank): Loskopdam, *Theron 1898* (PRE).
—2530 (Lydenburg): Upper Moodies, *Galpin 629* (PRE).
—2531 (Komatipoort): confluence of Komati and Crocodile Rivers, *Bolus 7626* (BOL).
—2626 (Klerksdorp): Rietfontein, *Louw 1183* (PRE).
—2627 (Potchefstroom): Goedgedacht, Ventersdorp, *Sutton 632* (PRE).
—2628 (Johannesburg): Melville Koppies, *Macnae 1487* (NBG).
—2629 (Bethal): 2 miles S.E. of Standerton, *Godfrey H-1422* (PRE).
—2630 (Carolina): Carolina, *Roberts s.n.* sub Tvl Mus. *15284* (PRE).
SWAZILAND—2531 (Komatipoort): Havelock Concession, *Saltmarshe s.n.* sub *Galpin 1056* (PRE, SAM).
—2631 (Mbabane): Forbes Reef, *Compton 22405* (NBG).
ORANGE FREE STATE—2727 (Kroonstad): Kroonstad, *Pont 591* (PRE).
—2826 (Brandfort): Glen, *Mostert 713* (PRE).
—2925 (Jagersfontein): Rotorua, Fauresmith, *Henrici 2628* (PRE).
—2926 (Bloemfontein): Thaba 'Nchu, *Roberts 2936* (PRE).

NATAL—2730 (Vryheid): Hlobane, *Johnstone 451* (NU).
—2731 (Louwsburg): Nongoma Townlands, *Gerstner 4610* (PRE).
—2829 (Harrismith): Winterton, *Dohse 74* (PRE).
—2830 (Dundee): 3 miles E. of Nqutu, *Codd 7665* (PRE).
—2831 (Nkandla): Ngoye Forest, *Ross 2124* (PRE).
—2832 (Mtubatuba): Hluhluwe Game Reserve, *Fakude 53* (NU, PRE).
—2929 (Underberg): Estcourt, *West 1355* (PRE).
—2930 (Pietermaritzburg): Table Mountain, *Killick 199* (NU).
—2931 (Stanger): Groutville, *Moll 2515* (NU, PRE).
—3029 (Kokstad): Bedford, Harding, *Lennox s.n.* (NU).
—3030 (Port Shepstone): near Dumisa, *Strey 4306* (PRE).
CAPE—3029 (Kokstad): near Clydesdale, *Tyson 2168* (BOL, GRA, PRE).
—3118 (Vanrhynsdorp): 4 miles E. of Van Rhyn's Dorp, *Hall 3594* (NBG).
—3124 (Hanover): Hanover, *Marloth 5682* (PRE).
—3125 (Steynsburg): 12 miles S.W. of Middelburg, *Acocks 16594* (PRE).
—3126 (Queenstown): Andriesberg, near Bailey, *Galpin 2230* (PRE).
—3217 (Vredenburg): Saldanha Bay, *Hall s.n.* sub NBG *72487* (NBG).
—3218 (Clanwilliam): Clanwilliam, *Leipoldt 418* (SAM).
—3225 (Somerset East): Bruintjeshoogte, *MacOwan 1854* (GRA).
—3227 (Stutterheim): Pirie, *Flanagan 2239* (BOL, PRE, SAM).
—3228 (Butterworth): near Qolora Mouth, *Pegler 1440* (BOL).
—3317 (Saldanha): Hoedjies Bay, *Hall s.n.* sub NBG *72460* (NBG).
—3318 (Cape Town): Signal Hill, *Marloth 7001* (PRE).
—3319 (Worcester): Tulbagh, *Esterhuysen 17491* (BOL).
—3320 (Montagu): near Touws River, *Zinn s.n.* sub SAM *65806* (SAM).
—3322 (Oudtshoorn): Cango Valley, *Marloth 12127* (PRE).
—3323 (Willowmore): N. of Joubertina, *Fourcade s.n.* (Fourcade collection, BOL).
—3325 (Port Elizabeth): Parsons Vlei, *Long 137* (GRA).
—3326 (Grahamstown): Grahamstown, *Glass 567* (SAM).
—3327 (Peddie): East London, *Smith 3764* (PRE).
—3418 (Simonstown): Witsands, *Penfold 260* (NBG).
—3419 (Caledon): Riviersonderend, *Zeyher 4259* (SAM).
—3423 (Knysna): Knysna Heads, *Fourcade 2024* (Fourcade collection, BOL).
—3424 (Humansdorp): Kabeljauws, *Fourcade 3355* (Fourcade collection, BOL).

12. **Drimia cooperi** (Bak.) Bak. in Fl. Cap. **6:** 443 (1897).

Ornithogalum cooperi Bak. in J. Linn. Soc., Bot. **13:** 284 (1873). Type: Cape, "ad oram orientalis", *Barber s.n.* (TCD, lecto.!, K!).

Bulb 25–50 mm long, narrowly ovoid to globose; the scales more or less firmly arranged, pale, with fine threads where the leaf blades have been shed or where damaged. *Leaves* synanthous, 2–4, sublinear, 80–270 mm long, 8–13 mm broad, glabrous, firm. *Peduncles* 400–600 mm long, with 35–70 flowers in a rather elongate raceme. *Bracts* 2–7 mm long; the lowest with a spur 2–3 mm long. *Pedicels* 2–4 mm long, erect-spreading. *Perianth* greenish-white, rather conspicuously striped on keel in dried material, fused for 1–1,5 mm; segments 5–6 mm long, oblong, probably spreading. *Filaments*, 1,5–3 mm long, narrowly lanceolate, tapering from the base, attached to the perianth segments above the tube; anthers dorsifixed, *c.* 1. mm long. *Ovary* ovoid, 2–3 mm long, with 15–20 ovules per locule; style *c.* 3 mm long, subcapitate. *Fruits* unknown.

Recorded from a rather limited region of the Cape Province in the Stutterheim and Butterworth degree blocks.

Occurs on grassy hills and flowers in early summer.

Florally this species is similar to *D. anomala*, but in other respects appears to be rather isolated.

SELECTED SPECIMENS

CAPE—3227 (Stutterheim): near Komgha, *Flanagan 1302* (BOL, PRE, SAM); near Kei Road Station, *Galpin 8243* (PRE).
—3228 (Butterworth): Kentani, *Pegler 1395* (BM, BOL).

13. **Drimia altissima** (L.f.) Ker-Gawl. in Curtis's bot. Mag. **27:** t.1074 (1808).

Ornithogalum altissimum L.f., Suppl. 199 (1781). Type: "Cap. bonae spei," *Thunberg s.n.* (UPS–*8275*, microfiche!). There is also a Thunberg specimen in S!.

Urginea altissima (L.f.) Bak. in J. Linn. Soc., Bot. **13:** 221 (1873).

Idothea altissima (L.f.) Kuntze, Rev. Gen. **2:** 712 (1891).

Ornithogalum giganteum Jacq., Hort. Schoenbr. **1:** 45, t.87 (1797). Type: Jacq., Hort. Schoenbr. **1:** t.87 (1797).

Drimia uitenhagensis Eckl. in S. Afr. Quart. Jl. **1:** 364 (1830). Type: "On the hills of Adow, (District Uitenhage)," not located, but the 3–4 ft long inflorescence and hysteranthy makes its identification virtually certain. *Ecklon 17* (S!), without locality, may be type material and would confirm this identification.

Urginea kniphofioides Bak. in Fl. Cap. **6:** 469 (1897). Type: Transvaal, Havelock Concession, *Saltmarshe s.n.* sub *Galpin 1055* (K, holo.!, BOL!).

Urginea forsteri Bak. in Fl. Cap. **6:** 469 (1897). Syntypes: Cape, near Hopefield, *Bachmann 1708* (Z!); Worcester Division, *Cooper 3275* (K!); without locality, *Forster s.n.* (K!); *Wallich s.n.* (BM!, K!).

Urginea epigea R. A. Dyer in Flower. Pl. Afr. **26:** t.1027 (1947). Type: Transvaal, Middelburg District, N. of Zoetvelden, *Van der Merwe 2203* (PRE, holo.!).

Bulb 90–200 mm long, epigeal and with only fleshy rather loose scales, or hypogeal and with outer membranous scales and more tightly packed inner fleshy scales; scales whitish to pale green. *Leaves* almost always hysteranthous, (3–) 5–10(–16), oblong to narrowly oblong-lanceolate, 200–400(–450) mm long, 25–40(–65) mm broad. *Peduncles* (600–)700–1 500(–2 500) mm long, usually with 100–300 flowers which may be arranged in whorl-like clusters but are usually spirally arranged. *Bracts* 5–7 mm long; the lowest with a spur rarely exceeding 2 mm long, and usually caducous. *Pedicels* (2–)5–20(–25) mm long, erect-spreading. *Perianth* white or cream-coloured with or without a green dorsal stripe, fused to 2 mm or subfree, spreading or less often reflexed; segments (3–) 7–10(–15) mm long. *Filaments* 3,5–9(–12) mm long, linear to narrowly linear-lanceolate; anthers dorsifixed, 1–3 mm long. *Ovary* ellipsoid to ovoid, 2–4 mm long; style 2,5–5(–11) mm long; stigma undifferentiated or distinctly capitate. *Capsule* obovoid, cordate at the base, 10–12 mm long. *Seeds* flat, elliptic, *c*.5–9 × *c*.4–5 mm.

Very widespread in southern Africa but apparently largely absent from the Kalahari and much of the Orange Free State.

D. altissima occurs on loose sandy soils and in firmer clay or gravel soils. There is a similar tolerance to climatic conditions, but it occurs more frequently in areas with a rainfall below about 500 mm per annum. Flowers are produced in most months of the year, but most records are for summer. There does not appear to be any correlation between geographical distribution and flowering season—

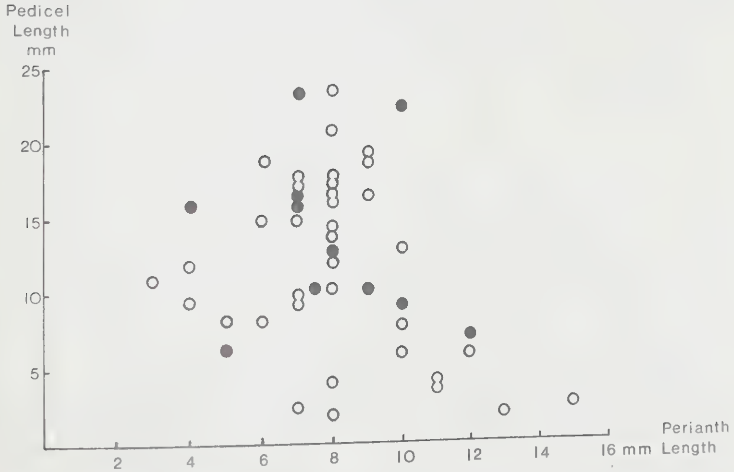

FIG. 2.
Diagram to illustrate variation in pedicel and perianth lengths in *Drimia altissima*. Solid dots indicate plants known to have epigeal bulbs. Based on herbarium specimens.

winter and summer flowering having been recorded for both summer and winter rainfall areas.

Of the names reduced here to synonymy, two require particular attention. In 1947 Dyer wrote of *Urginea epigea* that it differed from *U. altissima* in having a less dense inflorescence and in its epigeal bulb. He overlooked a possible additional character in that the pedicels are generally longer—over 15 mm—in the material he was describing from the Transvaal (although this character is related to the density he observed). In floral and leaf characters there appears to have been no supplementary justification for the separation of these species. Figure 2 illustrates the correlation between pedicel length and perianth length with, where known, an indication of whether the bulb is epigeal or hypogeal. However, as pointed out by Dyer, there are many herbarium specimens in which the bulb character cannot be determined. Geographically, epigeal bulbs are characteristic of the eastern and northern Transvaal, but also occur in populations in South West Africa, Natal and the eastern Cape. Hypogeal bulbs occur virtually throughout the range of the species—that is from the south-western Cape, through the eastern Cape, Natal, most of the Transvaal (including the east and north), South West Africa and the territories to the north.

In the absence of any correlation between bulb form and other morphological characters, or the geographical isolation of the bulb forms, it is not considered justified to separate two taxa on this single character. However, plants grown in cultivation in the nursery of the Botanical Research Institute for up to six years, have retained distinct bulb characters. It is considered improbable that bulbs occur above ground in extensive populations of several hundred or more individuals only as a result of erosion of the soil or other edaphic conditions. Genetic differences are likely to exist.

For illustration, see Flower. Pl. Afr. **26:** t.1027 (1947).

SELECTED SPECIMENS

SOUTH WEST AFRICA—1716 (Enana): 18,8 miles N. of Ondongua on road to Omafo, *De Winter 3620* (PRE).

—1719 (Runtu): 16,2 miles S. of Runtu, *De Winter 3786* (PRE).

—1724 (Katima Mulilo): Caprivi Strip, E. of Cuando River, *Curson 1072* (PRE).

—1917 (Tsumeb): 13,4 miles S. of Tsumeb on road to Grootfontein, *De Winter 3685* (PRE).

—2219 (Sandfontein): Sandfontein, *Wilman s.n.* sub BOL *15279* (BOL).

—2319 (Aminuis): 60 miles S.E. of Gobabis, *Basson 93* (PRE).

BOTSWANA—2022: 5 miles S. of Mwaku Pan, *Van der Spuy 31* (PRE).

TRANSVAAL—2231 (Pafuri): 27 miles N.E. of Punda Maria, *Codd & Dyer 4621* (PRE).

—2329 (Pietersburg): 3 miles E. of Boyne, *Van Vuuren 1269* (PRE).

—2330 (Tzaneen): Hans Merensky Nature Reserve, *Oates 104* (PRE).

—2428 (Nylstroom): Warmbaths, *Leendertz s.n.* sub Tvl Mus. *6577* (PRE).
—2429 (Zebediela): Percy Fyfe Nature Reserve, *Huntley 1907* (PRE).
—2431 (Acornhoek): 18 miles from Satara on Rabelais road, *Van der Schijff 3292* (PRE).
—2526 (Zeerust): Bierkraal, 50 miles N. of Rustenburg, *Steyn s.n.* sub O.P. *15708* (PRE).
—2528 (Pretoria): Premier Mine, *Pole Evans 9823* (PRE).
—2529 (Witbank): Middelburg, *Van der Merwe 2203* (PRE).
—2530 (Lydenburg): Sabie, *Rogers 18812* (BOL).
—2531 (Komatipoort): 16 miles W. of Skukuza, *Codd 5696* (PRE).

SWAZILAND—2531 (Komatipoort): Havelock Concession, *Saltmarshe s.n.* sub *Galpin 1055* (BOL).
—2731 (Louwsburg): 10 miles W. of Gollel, *Ben Dlamini s.n.* (PRE).

ORANGE FREE STATE—2925 (Jagersfontein): Fauresmith Veld Reserve, *Henrici 3573* (PRE).

NATAL—2632 (Bella Vista): Ndumu Hill, *Pooley 3* (NU).
—2730 (Vryheid): Naauwhoek, *Devenish 1178* (PRE).
—2731 (Louwsburg): near Rooikranz, *Dyer 5040* (PRE).
—2732 (Ubombo): Mkuzi Game Reserve, *Ward 4455* (PRE).
—2831 (Nkandla): Hluhluwe Game Reserve, *Ward 3730* (PRE).
—3030 (Port Shepstone): Ixopo, *Webb s.n.* (PRE).

CAPE—3118 (Vanrhynsdorp): 5 miles N. of Vanrhynsdorp, *Pearson & Pillans s.n.* sub P.S.M. Expedition 1910/11 no. *5457* (BOL).
—3125 (Steynsburg): Zuurberg, *MacOwan 2195* (GRA).
—3126 (Queenstown): between Queenstown and Dordrecht, *Werdemann & Oberdieck 1077* (PRE).
—3218 (Clanwilliam): Piquetberg, *Marloth 7692* (PRE).
—3224 (Graaff-Reinet): near Graaff-Reinet, *Bolus 649* (BOL).
—3225 (Somerset East): Boschberg, *MacOwan s.n.* (GRA, Z).
—3226 (Fort Beaufort): Bedford, *Theron 582* (PRE).
—3227 (Stutterheim): near Komgha, *Flanagan 1188* (BOL, SAM).
—3228 (Butterworth): Butterworth, *Pegler 1155* (BOL).
—3317 (Saldanha): Saldanha Bay, *Leighton 2363* (BOL).
—3318 (Cape Town): Lions Head, *Wolley Dod 2277* (BOL).
—3319 (Worcester): near De Doorns, *Bolus 13032* (BOL, GRA, PRE).
—3325 (Port Elizabeth): Uitenhage, *Dahlstrand 350* (GRA).
—3326 (Grahamstown): Alicedale, *Cruden s.n.* (GRA).
—3418 (Simonstown): Llandudno, *Leighton 458* (BOL, PRE).
—3419 (Caledon): near Caledon on Shaws Pass road, *Lewis 3260* (SAM).
—3421 (Riversdale): Korente River to Heidelberg road, *Thompson 707* (PRE).
—3422 (Mossel Bay): Mossel Bay, *Marloth 7329* (PRE).

14. **Drimia macrocentra** (Bak.) Jessop, comb. nov.

Urginea macrocentra Bak. in Gdnrs' Chron. 1887, **1:** 702 (1887). Type: Cape, Transkei, *Barber 895* (K, holo.!).

Urginea lilacina Bak. in Fl. Cap. **6:** 469 (1897). Types: Natal, Inanda, *Wood 198* (K!, NH!—syn.); *Wood 642* (K, lecto.!; BM!, NH!—syn.).

Urginea echinostachys Bak. in Fl. Cap. **6:** 468 (1897). Type: Natal, Inanda, *Wood 276* (K, holo.!).

Urginea schlechteri Bak. in Bull. Herb. Boissier, sér. 2, **4:** 1000 (1904). Type: Natal, Claremont, *Schlechter 3155* (ex errore *3158*) (BOL!, GRA!, K!, PRE!, Z!).

Bulb 30–50 mm long, ovoid to globose; scales firmly arranged. *Leaf* usually hysteranthous, solitary, cylindrical, 400–1 000 mm long, *c.* 15 mm broad in dried material. *Peduncles* 250–800(–900) mm long, with 50–100 flowers in a more or less elongate raceme. *Bracts* 4–5 mm long, brown or pink to orange; lowermost 2 or 3 with a spur 25–35 mm long and up to 7 mm broad distally, early caducous. *Pedicels* (2–)7–10(–12) mm long, erect-spreading. *Perianth* white or pink, with or without a green keel, fused for less than 1 mm, 6–7(–8) mm long; segments spreading. *Filaments* 4–5 mm long, linear-lanceolate; anthers dorsifixed, 0,75–1 mm long. *Ovary* ovoid, *c.*3 mm long, with 10–15 ovules per locule; style 1,5–3 mm long, minutely 3-lobed. *Capsule* ovoid to ellipsoid, 9–11 mm long. *Seeds* more or less flat, asymmetrical, *c.*5 mm long.

Occurs throughout Natal and in the extreme east of the eastern Cape.

Grows in a wide range of habitats, including both forest and open mountain slopes and in wet places. Flowers are produced in early summer—especially October and November.

The affinity of this species is probably with *D. sanguinea*. The larger size, single cylindrical leaf and very large spur to the lowest bracts are diagnostic, and this species is very clearly demarcated from any other.

For illustration see Flower. Pl. S. Afr. **4:** t.142 (1924).

SELECTED SPECIMENS

NATAL—2828 (Bethlehem): Mont aux Sources, *Schweickerdt 635* (PRE).
—2829 (Harrismith): Cathedral Peak Forest Station, *Killick & Marais 2140* (K, NU, PRE).
—2830 (Dundee): Krantzkop, *Thode s.n.* sub STE *3480* (STE).
—2831 (Nkandla): Empangeni, *Mackay s.n.* sub *Marloth 11659* (PRE).
—2929 (Underberg): Giants Castle, *Tinley s.n.* (NU).
—2930 (Pietermaritzburg): Nottingham Road, *Galpin 9579* (PRE).
—3030 (Port Shepstone): Dumisa, *Rudatis 438* (L, PRE, S, Z).
CAPE—3029 (Kokstad): Mt Currie, *Goossens 357* (PRE, Z).
—3127 (Lady Frere): Tsomo River, *Bowker s.n.* sub SAM *23224* (SAM).

15. **Drimia sanguinea** (Schinz) Jessop, comb. nov.

Urginea sanguinea Schinz in Verh. Bot. Ver. Prov. Brandenburg **31:** 219 (1890). Type: "Osnambonde in Nord-Hereroland", *Schinz 25* (Z, holo.!, K!).

Urginea burkei Bak. in Fl. Cap. **6:** 469 (1897). Types: Transvaal, near Vaal River, *Nelson 170* (K!, PRE!-syn.); Magaliesberg, *Burke s.n.* (K, lecto.!, BM! -syn.); Mozambique, between Lourenço Marques and Puzeens, *Bolus 7628* (BOL!, K!-syn.).

Urginea rautanenii Bak. in Bull. Herb. Boissier, sér. 2, **3:** 664 (1903). Type: "Deutsch-Südwest-Afrika, Amboland, Ondonga", *Rautanen s.n.* (Z, holo.!).

Bulb (40–)55–90 mm long, usually ovoid, often with a distinct neck up to 100 mm long and a woody basal portion up to 25 mm long; scales tightly packed, red. *Leaves* usually hysteranthous, 3–8, linear-lanceolate, 250–300(–350) mm long, (3–)4–10(–14) mm broad. *Peduncles* (60–)200–450(–600) mm long, with (40–) 50–70(–80) flowers. *Bracts* 1–2 mm long; lowest with spurs *c*.1 mm long, but early caducous. *Pedicels* (2–)4–12(–14) mm long, erect-spreading. *Perianth* white with or without a brown dorsal stripe, more or less free, 8–11 mm long, spreading or slightly reflexed. *Filaments* 5–7 mm long, linear to linear-lanceolate; anthers dorsifixed, 1–2,5 mm long. *Ovary* ovoid or oblong-ovoid, 3,5–4 mm long; style 3–4 mm long, distinctly capitate. *Capsule* ellipsoid or ovoid-ellipsoid to oblong, (10–)12–18(–20) mm long. *Seeds* flat, elliptic to oblong, 7–12 × 4–6 mm.

Widespread in South West Africa, the Cape north of the Orange River and the Transvaal.

Occurs most frequently on the Kalahari sands, but also recorded from hard pan soil. Flowers are produced in spring and early summer.

D. sanguinea has been fairly well collected, perhaps because it is an important cause of stock poisoning. It appears to be particularly clearly demarcated and constant in its characters. However, in the Transvaal the capsule tends to be smaller (under 15 mm) than in the plants from South West Africa (over 17 mm). This character is not, however, considered to be sufficiently well-defined or sufficiently well correlated with any other characters to be used in separating distinct taxa.

For illustration see Flower. Pl. S. Afr. **4:** t.138.

SELECTED SPECIMENS

SOUTH WEST AFRICA—1815 (Okahakana): 38 miles S. of Ondonua on road to Okaukuejo, *De Winter 3619* (PRE).
—1917 (Tsumeb): Tsumeb, *Naegelsbach 17* (PRE).
—1918 (Grootfontein): 40 miles E. of Grootfontein, *Van Vuuren 1185* (PRE).
—2219 (Sandfontein): Sandfontein, *Wilman s.n.* sub BOL *15237* (BOL).
—2317 (Rehoboth): Rehoboth, *Volk 705* (PRE).

BOTSWANA—1925: Ngamiland, Nata to Tamasetsi, *Pole Evans 4633* (PRE).
—2022: 16 miles from Tsau to Shakawe, west of Okavongo Swamps, *Story 4733* (PRE).
—2425 (Gaberones): between Molepolole and Matlogagang, *Van Rensburg B4140* (PRE).
TRANSVAAL—2329 (Pietersburg): Dendron, *Van der Merwe 1962* (PRE).
—2428 (Nylstroom): 15 miles N.W. of Nylstroom, *Codd 6152* (PRE).
—2526 (Zeerust): Marico, *Van der Merwe 20* (PRE).
—2527 (Rustenburg): Rustenburg, *Leendertz s.n.* sub Tvl Mus. *9670* (PRE).
—2528 (Pretoria): Zwartkop, *Repton 1815* (PRE).
—2626 (Klerksdorp): Rooijantjiesfontein, between Lichtenburg and Gerdau, *Kinges 1894* (PRE).
—2627 (Potchefstroom): Potchefstroom, *Goossens 1672* (PRE).
—2628 (Johannesburg): Vaal River, *Nelson 170* (PRE).
—2725 (Bloemhof): Wolmaransstad, *Sutton 63* (PRE).
CAPE—2624 (Vryburg): Mosito, Manbogossa, *Daly s.n.* sub SAM *23232* (SAM).
—2723 (Kuruman): 3 miles N.E. of Kuruman, *Leistner 972* (PRE).
—2822 (Glen Lyon): Bergenaars Pad, *Acocks & Hafström H1375* (PRE).
—2823 (Griekwastad): 10–30 miles E. of Postmasburg, *Acocks & Hafström H1121* (PRE).
—2824 (Kimberley): Warrenton, *Adams 209* (GRA).
—2922 (Prieska): Asbestos Hills near Griquatown, *Marloth 7686* (PRE).

16. **Drimia delagoensis** (Bak.) Jessop, comb. nov.

Urginea delagoensis Bak. in Fl. Cap. **6:** 467 (1897). Type: Mozambique, between Delagoa Bay and the Lebombo Mountains, *Bolus 7627* (K, holo.!, BOL!).

Urginea lydenburgensis R. A. Dyer in Flower. Pl. S. Afr. **22:** 859 (1942). Type: Transvaal, Lydenburg District, *Swart s.n.* sub PRE *23303* (PRE, holo.!).

Urginea ubomboënsis R. A. Dyer in Flower. Pl. S. Afr. **22:** t.859 (1942), ex errore *U. delagoensis* Bak.

Bulb (25–)40–50(–150) mm long, usually in small groups, ovoid, often with a rather gnarled exterior, sometimes above ground and then with looser scales, often with a pronounced membranous sheath round base of leaves; scales red in dried material, internally often light brown with or without a green surface to the outside of the bulb. *Leaves* synanthous, 3–8, cylindrical or channelled on the ventral surface, 130–300(–450) mm long, 2–10(–15) mm broad. *Peduncles* 200–300(–600) mm long, with (10–)20–50(–60) flowers arranged in a more or less elongate raceme. *Bracts* 2–5 mm long; lowest bracts with a spur *c*.2 mm long, but early caducous or aborting. *Pedicels* 1,5–5(–6) mm long, erect-spreading. *Perianth* light brown, creamy white or pale mauve, with or without a darker area or stripe on the dorsal surface, 3–5(–5,5) mm long; segments spreading. *Filaments* 2,5–4 mm long, linear; anthers dorsifixed, 1 mm long. *Style* 1,5–2 mm long, minutely 3-lobed. *Capsule* narrowly ellipsoid, 7–10 mm long. *Seeds* narrowly lanceolate, 4–8 × 1–2 mm.

Occurs in the lowveld of the Transvaal, Swaziland and Zululand, and also recorded from Mozambique.

Its most frequent locality appears to be among rocks, but also reported from boggy ground and in forest. Flowers are produced mainly from August to October, but also in other months from mid-winter to mid-summer.

This species is closely allied to *D. sanguinea*, with which it shares the property of being toxic.

For illustration see Flower. Pl. S. Afr. **22:** t.858 (1942).

SELECTED SPECIMENS

TRANSVAAL—2530 (Lydenburg): Lydenburg, *Swart s.n.* sub O.P. *12268* (PRE); Nelspruit, *Buitendag 118* (PRE).
—2531 (Komatipoort): N. bank of Sabie near Skukuza, *Codd 5717* (PRE); Hlahlabse Hill near Malelane, *Codd 6088* (PRE).
SWAZILAND—2731 (Louwsburg): Ngwavuma, *Bayliss 3458* (PRE); 7 miles W. of Gollel, *Compton 29108* (NBG, PRE).
NATAL—2632 (Bella Vista): Mahumane, *Pooley 642* (NU).
—2732 (Ubombo): Pongola Poort, *Repton 5986* (PRE); Jozini Dam, *Strey 5149* (PRE).
—2831 (Nkandla): Hluhluwe, *Ward 1415* (PRE); Umhluhluwe Springs, *Gerstner 3108* (BOL, PRE).

17. **Drimia marginata** (Thunb.) Jessop, comb. nov.

Anthericum marginatum Thunb., Prodr. **63** (1794). Type: Cape, ‘‘ex Hantam’’, *Thunberg s.n.* (UPS-*8393*, holo., microfiche!).

Idothea marginata (Thunb.) Kunth, Enum. Pl. **4:** 346 (1843).

Urginea marginata (Thunb.) Bak. in J. Linn. Soc., Bot. **13:** 218 (1873).

Anthericum pusillum Jacq., Icones **2** (16): 18, t.417 (1795). Type: Jacq., Icones **2** (16): t.417 (1795).

Caesia pusilla (Jacq.) Spreng., Syst. **2:** 88 (1825).

Idothea drimioides Kunth, Enum. Pl. **4:** 345 (1843), nom. nov. for *Anthericum pusillum* Jacq.

Urginea pusilla (Jacq.) Bak. in J. Linn. Soc., Bot. **13:** 217 (1873).

Bulb 30–35 mm long, ovoid to globose, sometimes producing a short neck, hypogeal; scales white, sometimes rather loosely packed. *Leaves* hysteranthous, 2–3, linear to spathulate, acute to emarginate, spreading to erect, tough and leathery, glabrous, dark green and shiny, sometimes with a brownish cartilaginous margin, 40–100(–150) mm long, 9–25 mm broad. *Peduncles* 120–260 mm long, with 10–15(–40) flowers arranged in a head. *Bracts* 1–2 mm long; the lowest with a spur up to *c*.1 mm long. *Pedicels* *c*.7–9 mm long, spreading to ascending. *Perianth* brown, 5–6 mm long, with a tube *c*.1 mm long; segments oblong to narrowly ovate, reflexing. *Filaments* *c*.3 mm long, lanceolate, attached at top of perianth tube; anthers dorsifixed, *c*.1 mm long. *Ovary* ovoid to ellipsoid, 2–3 mm long; style 1–1,5 mm long, subcapitate. *Fruit* unknown.

Restricted to the south-western Cape.

Habitat not recorded by collectors, but it appears to grow both in the Karoo and in the mountain macchia. Flowers are produced in summer.

D. marginata is very similar to *D. capitata* on inflorescence and floral characters but differs on leaf characters. The more or less spreading leaves with characteristic leathery hard texture and margins are diagnostic and, with its geographical distribution, enable identification to be made very readily. However, specimens are known which do not appear to conform to these concepts. *Muir 4126* (PRE) from "flats around Riversdale" has leaves apparently similar (oblanceolate to obovate) but up to only about 17 mm long. There are two inflorescences attributed to this plant, both from Marloth's garden. One (flowered in 1926) is capitate, but the other (flowered in 1927) has long internodes and longer pedicels. The second specimen (without collector or number; PRE) from the Long Kloof has identical leaves to those of *Muir 4126*, but the flowers are larger (perianth segments 5 mm long as opposed to 3–3,5 mm in *Muir 4126*), and the anthers (not seen in *Muir 4126*) appear basifixed. Further east (e.g. *Cruden 355;* GRA) to Port Elizabeth similar plants have leaves often with ciliate margins and produce lax inflorescences. The data at present available is not sufficient to decide on the status of these specimens.

SELECTED SPECIMENS

CAPE—3017 (Hondeklipbaai): 1 mile N. of Kamieskroon, *Hardy & Bayliss 1109* (PRE).
—3018 (Kamiesberg): between Garies and Bitterfontein, *Mathews s.n.* sub NBG *2167/29* (BOL).
—3118 (Vanrhynsdorp): Klaver, *Compton s.n.* sub NBG *320/22* (BOL).
—3119 (Calvinia): Akkerdam, Hantam Mountain slopes, *Barker 9343* (NBG).
—3218 (Clanwilliam): Zebra Kop, Piketberg, *Esterhuysen 14487* (BOL).
—3219 (Wuppertal): near Elandsfontein, *Schlechter 10038* (GRA, Z).
—3319 (Worcester): Hansiesberg, *Compton 16689* (NBG).
—3320 (Montagu): Visgat, Ceres, *Esterhuysen 13500* (BOL).

18. **Drimia depressa** (Bak.) Jessop, comb. nov.

Urginea depressa Bak. in Bull. Herb. Boissier, sér. 2, **4:** 1000 (1904). Type: Transvaal, Modderfontein, *Conrath 687* (Z, lecto.!, K!).

Ornithogalum capitatum Hook. in Curtis's bot. Mag. **88:** t.5388 (1863). Type: "British Kaffraria", *Cooper 208* (K, holo.!); non *Drimia capitata* Bak., 1897.

Urginea capitata (Hook.) Bak. in Fl. Cap. **6:** 465 (1897).

Bulb (10–)25–40(–50) mm long, often colonial, ovoid to ovoid-elliptic; scales tightly packed, white. *Leaves* usually hysteranthous, 5–8, linear to linear-lanceolate, (80–)100–240(–260) mm long, (4–)10–26 mm broad. *Peduncles* (25–)50–100(–200) mm long, sometimes paired, but usually solitary, with 10–20(–50) flowers in a globose head. *Bracts* 0,5–4 mm long; the lowest with spurs 1–6 mm long. *Pedicels* (3–)8–12(–15) mm long, more or less spreading. *Perianth* white with purple, brown or pink dorsal surface or dorsal stripe, fused for less than 1 mm, 3–6 mm long; segments linear-oblong, spreading. *Filaments* 3–4 mm long, lanceolate, white; anthers dorsifixed, 0,5–1,25 mm long, brown. *Ovary* ovoid, 2–3 mm long, white, with *c.*15 ovules per locule; style 1,5–2,5 mm long. *Capsule* ovoid, 5–8 mm long. *Seeds* flat, usually asymmetrical, 4–4,5 × 3–4 mm.

Widespread in the Transvaal (especially to the south), Natal, Swaziland, Lesotho and the eastern Cape.

Occurs in open grassveld or among stones. Flowers are produced in late winter, spring and occasionally in summer and open in the evening.

Urginea capitata and *U. depressa* have been separated in the past because of the latter's supposedly having narrower leaves and shorter peduncles and perianth segments. *U. capitata* was the name applied to material from the Cape and through Natal to Barberton, while *U. depressa* was applied to material from the rest of the Transvaal. However, an examination of all the available specimens has satisfied the present author that there is no justification for recognising two species in this complex.

There are three species of capitate drimias, recognised in the present work. *D. sphaerocephala*, with a distinct perianth tube and reflexed often more brightly coloured segments, is readily distinguishable. *D. marginata* and *D. depressa* are separated on less distinct characters. In addition, there are specimens identified in various herbaria as belonging to *Urginea ecklonii* Bak. The type of this species has not been located (*Ecklon & Zeyher* Asphod. *128*), and with the limited material available it has not been decided where these specimens should be placed. The following specimens (all SAM) have been, for example, identified as *U. ecklonii*: *Lewis 1442* from the foot of the Schurfteberg, Ceres Division; *Stokoe s.n.* sub SAM *68059* from Cedarberg Duivelskop. The inflorescence of these plants is capitate (peduncle 90–200 mm long), pedicels 10–20, 4–11 mm long and the perianth 4–5 mm long; which agrees closely with *D. depressa* as defined here. The only leaves appear etiolated and possibly developed during pressing and in the dark and are very narrow, *c*.1 mm diameter. If the mature leaves are found to be narrow it would exclude the possibility of these plants belonging to *D. marginata* or even, possibly, *D. depressa*. In that event it is possible that these plants may have to be placed in a new species (or possibly in *U. ecklonii*). Baker's material on which he based *U. ecklonii* lacked leaves.

It is not always easy to distinguish *D. depressa* from *D. physodes*, although generally the latter is a species of drier areas—Karoo, Kalahari and the Orange Free State, and has pedicels over 15 mm long and a distinctly elongate inflorescence. Nevertheless, these two species are undoubtedly very closely related. *Louw 1049* (PRE) from Witkop, Potchefstroom, appears closer to *D. physodes* but has pedicels about 10 mm long. *Repton 1340* (PRE) from Lyttleton (Verwoerdburg) is more distinctly like *D. physodes* in the form of the inflorescence, but with pedicels just over 10 mm long. Other specimens similar to *Repton 1340* are known from the Nylstroom area.

For illustration see Batten, A. & Bokelmann, H. (1966), *Wild flowers of the eastern Cape Province*, pl. 12, fig. 3.

Selected Specimens

TRANSVAAL—2527 (Rustenburg): Heuningklipkloof, Krugersdorp, *Repton 4154* (PRE).
—2528 (Pretoria): Murraysfield, *Strey 2979* (PRE).
—2529 (Witbank): Bronkhorstspruit, 27½ miles S.W. of Groblersdal, *Acocks 23344* (PRE).
—2531 (Komatipoort): Saddleback Mountain, *Galpin 987* (GRA, K, PRE, SAM).
—2626 (Klerksdorp): Mondeor, Ventersdorp, *Mogg s.n.* sub *J26619* (PRE).
—2627 (Potchefstroom): Krugersdorp, *Acocks 18728* (PRE).
—2628 (Johannesburg): Brakpan, *Murray 406* (PRE).
—2629 (Bethal): Nooitgedacht, *Potter 1713* (PRE).
—2630 (Carolina): Carolina, *Rademacker s.n.* sub Tvl Mus. *7483* (PRE).
SWAZILAND—2631 (Mbabane): Ukutula, Mbabane, *Compton 27998* (NBG).
NATAL—2730 (Vryheid): Naauwhoek, *Devenish 734* (K, PRE).
—2828 (Bethlehem): Mont aux Sources, *Trauseld 274* (NU, PRE).
—2829 (Harrismith): Cathedral Peak, *Esterhuysen 12918* (BOL).
—2830 (Dundee): Kaffir Drift, *Thode A368* (PRE).
—2929 (Underberg): near Lowlands, *Acocks 10547* (PRE).
—2930 (Pietermaritzburg): Oribi Aerodrome, *Moll 1877* (NU, PRE).
—3030 (Port Shepstone): Dumisa, *Rudatis 1438* (G, K, P, Z).
LESOTHO—2828 (Bethlehem): Leribe, *Dieterlen 363* (P, PRE).
—2927 (Maseru): Mamathes, *Jacot Guillarmod 1820* (PRE).
CAPE—2824 (Kimberley): Kimberley, *Wilman s.n.* (BOL).
—3029 (Kokstad): Kokstad, *Tyson 1842* (BOL, GRA, K, PRE, SAM).

—3129 (Port St Johns): West Gate, Port St Johns, *Galpin.*
—3225; (Somerset East): Bruintjieshoogte, without collector sub SAM *23188* (SAM).
—3227 (Stutterheim): near Komgha, *Flanagan 1723* (BOL, PRE, SAM).
—3324 (Steytlerville): between Kareedouw and Assegaai, *Jeppe s.n.* sub *Fourcade 4992* (Fourcade collection, BOL).

19. **Drimia multisetosa** (Bak.) Jessop, comb. nov.

Urginea multisetosa Bak. in Fl. Cap. **6:** 468 (1897). Lectotype: Natal, near Mooi River, *Wood 5724* (K!). Syntypes: Transvaal, Upper Moodies, *Galpin 584* (PRE!, K!).

Bulb 25–70(–80) mm long, ovoid to ovoid-oblong, with long fibres (often about 20–30 mm long) distally; scales white or creamy to yellow coloured, sometimes with a pinkish tinge, more or less densely packed. *Leaves* usually hysteranthous, but appearing before flowering completed, few, linear, 120–400 mm long, flat and 7–14 mm broad, or 200–300 mm long, subterete, channelled above, fleshier and 1–2 mm broad. *Peduncles* (200–)300–500(–800) mm long, with 20–30(–50) flowers in an elongate raceme. *Bracts* 1,5–3 mm long; lowest with persistent spur 1–3 mm long. *Pedicels* (2–)5–13 mm long, erect to erect-spreading. *Perianth* brown, yellowish or white, with a brown to black (sometimes green) dorsal stripe, with a tube 1–1,75 mm long, 4,5–6 mm long, spreading to reflexed. *Filaments* (1,5–)3–4 mm long, lanceolate, white; anthers dorsifixed, 1–1,5 mm long. *Ovary* ovoid to globose, 2,5–3 mm long; style 2–2,5 mm long; stigma scarcely differentiated to very strongly capitate. *Capsule* subglobose, ellipsoid or obovoid, 6–10 mm long. *Seeds* ellipsoid to arcuate, 4–7 mm long.

Occurs widely in Natal, the Orange Free State and the Transvaal, with a single record for the eastern Cape.

Grows in a wide range of habitats, including open grassveld, sand, shale or among rocks, or in the shade of savanna trees. Flowers in late spring to early summer. There may be two forms worthy of taxonomic recognition on the basis of leaf characters mentioned in the description above. But because of the hysteranthous behaviour of the leaves there is insufficient material to determine the extent of these forms.

Goossens 1677 (PRE) from Potchefstroom is of interest as its anthers are exceptionally long—approximately the same length as the filaments, whereas in most material they are about half the length.

For illustration see Flower. Pl. S. Afr. **22:** t.854 (1942).

SELECTED SPECIMENS

TRANSVAAL—2330 (Tzaneen): Duivelskloof, *Scheepers 686* (PRE, Z).
—2528 (Pretoria): Irene, *Obermeyer 69* (PRE).
—2530 (Lydenburg): Badplaas, *Van der Merwe 1637* (PRE).

—2627 (Potchefstroom): Potchefstroom University grounds, *Goossens 1677* (PRE).
—2628 (Johannesburg): Modderfontein, *Conrath 686* (Z).
ORANGE FREE STATE—2727 (Kroonstad): Kroonstad, *Pont 482* (PRE, Z).
NATAL—2730 (Vryheid): Tweekloof, Utrecht, *Thode A301* (PRE).
—2929 (Underberg): Giants Castle Game Reserve, *Trauseld 999* (NU, PRE).
—2930 (Pietermaritzburg): Scottsville, *Allsopp 885* (NU).
CAPE—3029 (Kokstad): Mvenyani, Cedarville, *Bandert 21* (GRA).

20. **Drimia physodes** (Jacq.) Jessop, comb. nov.

Anthericum physodes Jacq., Icones **2** (16): 18, t.418 (1795). Type: Jacq., Icones **2** (16): t.418 (1795).

Albuca physodes (Jacq.) Ker-Gawl. in Curtis's bot. Mag. **26:** t.1046 (1807).
Caesia physodes (Jacq.) Spreng., Syst. **2:** 88 (1825).
Idothea physodes (Jacq.) Kunth, Enum. Pl. **4:** 345 (1843).
Urginea physodes (Jacq.) Bak. in J. Linn. Soc., Bot. **13:** 217 (1873).

Bulb 40–75(–100) mm long, ovoid to ovoid-globose, sometimes with a distinct neck of several dry scales; scales whitish or pale yellow inside, with a few pergamentaceous outer scales. *Leaves* hysteranthous, 5–8, linear-lanceolate to lanceolate, erect, twisted, acute to subobtuse, 70–150(–200) mm long, 15–25(–37) mm broad, tending to glaucous greyish green. *Peduncles* (70–)100–200(–250) mm long, usually with 50–100 flowers arranged in a corymb or subcapitate at first but elongating later, purple-brown, occasionally pubescent. *Bracts* *c*.0,5 mm long; lowest with a spur less than 1 mm long. *Pedicels* 15–20 mm long, usually more or less spreading but sometimes reflexing in fruit, *c*.0,1 mm diameter but becoming at least twice as thick in fruit. *Perianth* white with brown or purplish on the dorsal surface, with a strongly marked, sometimes pubescent vein, fused for 0,5–1 mm, 4–6,5 mm long, linear-oblong, spreading. *Filaments* 2–3 mm long, lanceolate; anthers dorsifixed, *c*.1 mm long. *Ovary* ovoid, 2–3,5 mm long, with *c*.12–16 ovules per locule; style 1,5–2 mm long; stigma minutely 3-lobed. *Capsule* ellipsoid, 3-lobed, 7–10 mm long. *Seeds* flat, sometimes asymmetrical, 5–10 × up to 7 mm.

Widespread in the Cape Province except the extreme eastern parts, and present in the Orange Free State.

Particularly abundant on surface limestone deposits, but occurs generally over its range in both karroid and macchia vegetation. Flowers are produced in most months, but especially summer, and open in the late afternoon.

SELECTED SPECIMENS

ORANGE FREE STATE—2825 (Boshoff): road between Windsorton Road and Boshoff, *Leistner 1534* (K).

—2925 (Jagersfontein): Fauresmith, *Smith 5256* (PRE).
CAPE—2721 (Tellery Pan): Massaklous Pan, 20 miles S.S.E. of Kuruman River, *Leistner 3135* (PRE).
—2722 (Olifantshoek): Postmasburg, 50 miles N.W. of Olifantshoek, *Leistner 2071* (K, PRE).
—2816 (Oranjemund): Swartwater, near Orange River, *Hall 617* (NBG).
—2823 (Griekwastad): Griquatown, *Marloth 6097* (PRE).
—2824 (Kimberley): Witpan, Kimberley, *Topp s.n.* sub *Marloth 13418* (PRE).
—2917 (Springbok): Steinkopf, *Meyer s.n.* sub *Marloth 6396* (PRE).
—2922 (Prieska): near Omdraai, *Bryant 1166* (PRE).
—2923 (Douglas): Douglas, *Marloth 9434* (PRE).
—3018 (Kamiesberg): Marble Mine, Moedverloer, Hol River, *Hall 3478* (NBG).
—3024 (De Aar): near De Aar, *Ridley s.n.* sub SAM *4410* (SAM).
—3118 (Vanrhynsdorp): Strandfontein, Vredendal, *Hall 3493* (NBG).
—3119 (Calvinia): Nieuwoudtville, *Bolus s.n.* (BOL).
—3125 (Steynsburg): Zuurberg, *Tyson 1858* (BOL).
—3218 (Clanwilliam): Clanwilliam, *Leipoldt 417* (K, SAM).
—3219 (Wuppertal): Welbedacht, Cedarberg, *Esterhuysen 20068* (BOL).
—3220 (Sutherland): Sutherland, *Krige s.n.* sub *Fuller 261* (BOL).
—3318 (Cape Town): Banhoek Peak, *Esterhuysen 19915* (BOL).
—3319 (Worcester): Seven Sisters, *Esterhuysen 18320* (BOL).
—3320 (Montagu): Tweedside, *Marloth 12099* (PRE).
—3322 (Oudtshoorn): Robinson Pass, Mossel Bay, *Esterhuysen 19413* (BOL).
—3323 (Willowmore): Joubertina, *Esterhuysen 21242* (BOL).
—3324 (Steytlerville): Kouga, Uniondale, *Esterhuysen 4673* (BOL).
—3418 (Simonstown): Kogel Bay, *Leighton 2490* (BOL).

21. **Drimia anomala** (Bak.) Bak. in Fl. Cap. **6:** 442 (1897).

Ornithogalum anomalum Bak. in Saund., Ref. Bot. **3:** t.178 (1870). Type: "sent from South Africa by Cooper", Saund., Ref. Bot. **3:** t.178 (1870). A specimen from Saunders' garden (K!) was not communicated to Kew until 1882 and is, therefore, not treated as the type although it may have come from the type material.

Urginea eriospermoides Bak. in Gdnrs' Chron. 1887, **2:** 126 (1887). Type: Cape, *MacOwan s.n.* (K, holo.!).

Bulb (25–)35–80 mm long, globose, usually with a sheath 25–30(–100) mm long; scales tightly packed, white. *Leaves* synanthous, usually solitary, cylindrical, glossy dark green, withering from the apex, but transverse plates associated with abscission laid down, 170–300 mm long, 3,5–4 mm broad. *Peduncles* 280–500(–600) mm long, with 14–80 flowers arranged in an elongate raceme. *Bracts* c.1 mm long, lowest with a spur 1–2 mm long. *Pedicels* (2–)3–5(–8) mm long, up to 12 mm long in fruit, erect-spreading. *Perianth* white, pale pink, beige, yellow or greenish, usually with a darker green, brown or reddish dorsal stripe, fused for *c.*1 mm, 4–5 mm long, spreading to recurved. *Filaments* 2,5–3 mm long, erect-spreading but never connivent; anthers dorsifixed, *c.*1 mm long. *Ovary* ovoid to ellipsoid, 1,5–2 mm long; style 1,5–2 mm long, minutely capitate or stigma not differentiated. *Capsule* ellipsoid, 4–6 mm long. *Seeds* strongly angled, 1,5–2 mm long.

Widespread in the eastern half of the Cape Province, with a single record from Natal.

Occurs in grassveld, among rocks, and in semi-desert areas. The flowers are produced throughout summer and are scented.

Marloth 8314 (PRE) from Jansenville is of interest as it has longer pedicels (*c.*10 mm) and a red bulb.

For illustration see Flower. Pl. Afr. **28:** t.1117 (1951).

SELECTED SPECIMENS

NATAL—3030 (Port Shepstone): Gibralter, *Strey 10020* (PRE).
CAPE—3029 (Kokstad): near Kokstad, *Tyson 1867* (NBG).
—3123 (Victoria West): near Murraysburg, *Tyson 165* (BOL, NBG).
—3125 (Steynsburg): Bangor Farm, *Bolus 14107* (BOL).
—3126 (Queenstown): near Fincham's Neck, *Galpin 2202* (BOL).
—3224 (Graaff-Reinet): Oudeberg near Graaff-Reinet, *Bolus 270* (BOL).
—3225 (Somerset East): near Somerset East, *MacOwan 1853* (GRA, Z).
—3226 (Fort Beaufort): Fort Armstrong, Balfour, *Martin 147* (NBG).
—3227 (Stutterheim): King Williams Town, *Sim 1721* (PRE).
—3228 (Butterworth): Butterworth, *Pegler 1801* (PRE).
—3322 (Oudtshoorn): Moeras River, *Barker 7732* (NBG).
—3323 (Willowmore): Die Hoek, near Joubertina, *Esterhuysen 18343* (BOL, PRE).
—3324 (Steytlerville): near Steytlerville, *Compton 20314* (NBG).
—3325 (Port Elizabeth): Red House, *Paterson 2648* (GRA).
—3326 (Grahamstown): Trappes Valley, *Bayliss 3082* (PRE).
—3327 (Peddie): Chalumna Causeway, *Barker 6965* (NBG).
—3423 (Knysna): Plettenberg Bay, *Esterhuysen 24210* (BOL).

22. **Drimia modesta** (Bak.) Jessop, comb. nov.

Urginea modesta Bak. in Engl. Bot. Jahrb. **15,** Beibl. 35: 6 (1892). Type: Pondoland, *Bachmann 273* (K, holo.!).

Urginea virens Schltr. in J. Bot., Lond. **1897:** 433 (1897). Syntypes: Cape, Tweefontein, *Schlechter 10127* (GRA!, BM!, K!, L!, P!, PRE!, Z!); Packhuisberg, *Leipoldt s.n.*

Urginea natalensis Bak. in Fl. Cap. **6:** 468 (1897). Types: Natal, Inanda, *Wood 277* (K, lecto.!, NH, syn.!); Umzinyati Falls, (NH, syn.!) *Wood 1036* (NH, syn.!).

Urginea riparia Bak. in Fl. Cap. **6:** 467 (1897). Type: Natal, Umzinyati Falls, *Wood 1052* (K, holo.!, NH!).

Urginea rubella Bak. in Fl. Cap. **6:** 467 (1897). Type: Natal, Mooi River, *Wood 5723* (K, holo.!, BM!, PRE!, BOL!).

Urginea dregei Bak. in Fl. Cap. **6:** 467 (1897). Syntypes: Cape, near Genadendal, *Bolus 7428* (BOL!); Du Toits Kloof, *Drège 1501* (K!).

Urginea tenella Bak. in Fl. Cap. **6:** 464 (1897). Type: Natal, Van Reenen, *Wood 4562* (K, holo.!, NH!).

Urginea pretoriensis Bak. in Bull. Herb. Boissier, sér. 2, **1:** 786 (1901). Type: Transvaal, Pretoria, Aapies River, *Rehmann 4307* (Z!).

Urginea pauciflora Bak. in Bull. Herb. Boissier, sér. 2, **1:** 786 (1901). Type: Natal, Umgeni Falls, *Rehmann 7455* (Z!); nom. illegit., non *U. pauciflora* Bak. (1892).

Urginea umgeniensis V. Poelln. in Ber. deutsch. bot. Ges. **61:** 209 (1944), nom. nov. for *U. pauciflora* Bak. (1901).

Urginea revoluta Duthie in Ann. Stell. Univ. **6A** (2): 9 (1928). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1874* (STE, holo.!, K!, PRE!), typical of western Cape members of *D. modesta* except that the perianth segments are strongly reflexed.

Urginea gracilis Duthie in Ann. Stell. Univ. **6A** (2): 10 (1928). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1446* (STE, holo.!, BOL!).

Urgineopsis salteri Compton in J. Bot., Lond. **68:** 107 (1930). Type: Cape Peninsula, Muizenberg on rock slabs, *Salter s.n.* sub BOL *18861* (BOL, lecto.!, BM!, K!).

Urginea salteri (Compton): Adamson in Jl S. Afr. Bot. **8:** 238 (1942).

Urginea arenosa Adamson in Jl S. Afr. Bot. **8:** 239 (1942). Type: Cape Peninsula, Red Hill, *Salter 8321* (BOL, holo.!, NBG!, K!).

Urginea pedunculata Adamson in Jl S. Afr. Bot. **10:** 134 (1944). Type: Cape Peninsula, Kalk Bay Mountains, *Levyns s.n.* sub *Adamson 3483* (BOL, holo.!).

Bulb 10–25 mm long, ovoid to globose, usually with whitish fleshy scales, less often reddish scales, and a few outer greyish to brown membranous scales, sometimes scales loosely arranged, but usually tightly packed, solitary to densely colonial, sometimes with a sheath up to or less often exceeding the length of the bulb and surrounding the base of the peduncle. *Leaves* usually hysteranthous, but especially in damp places occasionally synanthous, usually 4–8, linear, probably 100–150(–350) mm long, 1–2(–3) mm broad. *Peduncles* (25–)50–300(–400) mm long, with 2–40 flowers usually arranged spirally in a more or less elongate raceme, less often secund, straight or less often zigzagging. *Bracts* usually less than 1 mm long; lowest with a spur (2–)3–5(–7) mm long; most other bracts without spurs. *Pedicels* (2–)5–8 mm long, straight or arcuate, spreading to ascending, sometimes elongating in fruit and then up to 15 mm long. *Perianth* usually white with a brown, purple or mauve dorsal surface or dorsal stripe, free or subfree, (3–)4–5(–6) mm long, linear-oblong, spreading or less often ascending. *Filaments* 2–4 mm long, linear; anthers dorsifixed, yellow or brown, *c*.1 mm long. *Ovary* ovoid to ellipsoid or oblong, 1,5–3 mm long, green; style 1–1,5 mm long, minutely 3-lobed at the apex, white. *Capsule* rather narrowly ovoid-elliptic, 4–6 mm long. *Seeds* narrow, angled, 3–4 mm long.

Occurs throughout South Africa, except in the driest areas.

Occurs on rocky ledges in damp situations, on stream banks, marshy places and also in open grassveld and on stony hills. Flowers are produced in spring and summer, last only one day and are usually scented.

Plants from very damp areas differ considerably from plants from drier places. This has led to the recognition of species which cannot be upheld. Plants in wetter areas tend more often to form dense colonies, with darker coloured looser-scaled bulbs and larger synanthous leaves which tend to widen towards the base. This range in form resulting from growing in varying habitats is exactly parallelled in both summer and winter rainfall regions. In both of these areas there also seems to be a parallel series of forms with differing flower colours, numbers of flowers in the inflorescence and to some extent varying pedicel lengths.

The degree of fusion of the perianth has been employed not only in defining species but also in creating the new genus *Urgineopsis*. In the Transvaal most of the plants have virtually free segments, but in the south-western Cape, where in other respects the plants are very similar, there is a greater deal of variation in this respect. However, this variation has been found to be continuous and not to be associated with any other morphological or geographical characters and therefore not to warrant its use in recognising distinct taxa. Because of the small size of the flowers and the variation in a single inflorescence it is difficult to produce sufficiently meaningful measurements to demonstrate graphically the extent of this variation; Fig. 3 however indicates approximate perianth and tube lengths.

Young s.n. sub Tvl Mus. *32493* (PRE) is of interest as on this material there are rhizomes bearing bulbils. This appears to be an extremely rarely developed feature.

SELECTED SPECIMENS

TRANSVAAL—2330 (Tzaneen): Duivelskloof, Letaba, *Scheepers 1020* (PRE, Z).
—2428 (Nylstroom): Warmbaths, *Leendertz s.n.* sub Tvl Mus. *6529* (PRE).
—2429 (Zebediela): Potgietersrust, *Leendertz s.n.* sub Tvl Mus. *5652* (PRE).
—2527 (Rustenburg): Rustenburg, *Rogers 23425* (GRA, S).
—2528 (Pretoria): Donkerpoort, *Young 2425* (PRE).
—2530 (Lydenburg): Dullstroom, *Strey 3437* (PRE).

—2531 (Komatipoort): Sheba, near Barberton, *Bolus 7629* (BOL).
—2627 (Potchefstroom): Goedgedacht, Ventersdorp, *Sutton 600* (PRE).
—2628 (Johannesburg): Milner Park, Johannesburg, *Young 1214* (PRE).
—2729 (Volksrust): Volksrust, *Kamering s.n.* sub Tvl Mus. *5732* (PRE).
—2730 (Vryheid): Oshoek, Wakkerstroom, *Devenish 919* (PRE).
SWAZILAND—2631 (Mbabane): Millers Falls, *Compton 26190* (NBG).
—2632 (Bella Vista): Ngwenya Causeway, Stegi, *Karsten s.n.* sub NBG *71763* (NBG).
ORANGE FREE STATE—2828 (Bethlehem): Bethlehem, *Potgieter 4* (PRE).
—2829 (Harrismith): Swinburne, Rensburgskop, *Jacobsz s.n.* (PRE).
—2925 (Jagersfontein): Zamekomst, Fauresmith, *Henrici 1080* (PRE).
LESOTHO—2828 (Bethlehem): Leribe, *Dieterlen 404* (P, PRE).
—2927 (Maseru): Mamathes, *Jacot Guillarmod 1825* (PRE).
NATAL—2730 (Vryheid): Hlobane, *Johnstone 475* (NU).
—2731 (Louwsburg): Ngome, *Strey 9356* (PRE).
—2828 (Bethlehem): Mont aux Sources, *Schweickerdt 649* (PRE).

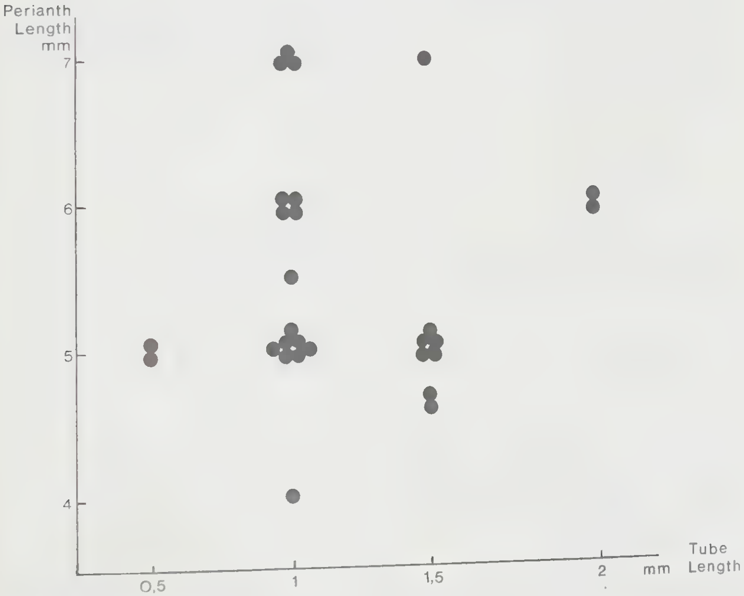

FIG. 3.

Diagram to illustrate variation in perianth length and in the length of fused portions of the perianth of *Drimia modesta* from the south-western Cape. Based on herbarium specimens.

—2829 (Harrismith): Bushmans River near Estcourt, *Schelpe 18* (NU).
—2830 (Dundee): Kaffir Drift, Utrecht, *Thode A369* (PRE).
—2929 (Underberg): Giants Castle Game Reserve, *Trauseld 408* (NU, PRE).
—2930 (Pietermaritzburg): Umbumbulu, *Wood 10174* (GRA, P, SAM).
—2931 (Stanger): Durban, *Ward 4683* (PRE).
—3030 (Port Shepstone): Fairfield, Alexandra, Dumisa, *Rudatis 755* (P, PRE).
CAPE—3027 (Lady Grey): Majuba Nek, *Hepburn 127* (GRA).
—3119 (Calvinia): Lokenburg, *Acocks 19740* (PRE).
—3125 (Steynsburg): Zuurberg, *Tyson 1858* (SAM).
—3126 (Queenstown): Andriesberg, *Galpin 2233* (BOL, GRA).
—3128 (Umtata): Tintwa, *Van der Merwe 2700* (NU, PRE).
—3129 (Port St Johns): Lusikisiki, Magwa Falls, *Strey 6717* (PRE).
—3219 (Wuppertal): Bokkeveld Tafelberg, *Schlechter 10105* (BOL, GRA, P, PRE).
—3226 (Fort Beaufort): top of Katberg, *Hutchinson 1648* (BOL).
—3227 (Stutterheim): Pirie, *Sim 1709* (PRE).
—3228 (Butterworth): near Kei Mouth, *Flanagan 206* (PRE).
—3318 (Cape Town): Kloof Corner, *Esterhuysen 22416* (BOL).
—3319 (Worcester): Michells Pass, *Schlechter 9962* (BOL, GRA, PRE, Z).
—3320 (Montagu): Strawberry Hill, Heidelberg, *Stokoe s.n.* sub SAM *68267* (SAM).
—3321 (Ladismith): Seven Weeks Poort, *Andreae 1342* (PRE).
—3325 (Port Elizabeth): Aloes, *Drège 3122* (PRE).
—3326 (Grahamstown): Alicedale, *Cruden 300* (PRE).
—3327 (Peddie): East London, *Rattray 621* (GRA).
—3418 (Simonstown): Orange Kloof, *Salter 9082* (NBG, SAM).
—3419 (Caledon): Onrust River, *Schlechter 10390* (BOL, GRA, Z).
—3420 (Bredasdorp): Grootvadersbos near Heidelberg, *Esterhuysen 18258* (BOL).
—3421 (Riversdale): 10 miles S. of Albertinia, *Acocks 22887* (PRE).

23. **Drimia minor** (Duthie) Jessop, comb. nov.

Urginea minor Duthie in Ann. Stell. Univ. **6A** (2): 11 (1928). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1546* (STE, holo.!, PRE!).

Urginea pygmaea Duthie in Ann. Stell. Univ. **6A** (2): 10 (1928). Type: Stellenbosch Flats, *Duthie s.n.* sub STE *1603* (STE, holo.!, K!, PRE!).

Urginea exilis Adamson in Jl S. Afr. Bot. **8:** 240 (1942). Type: Cape Peninsula, De Klip, *Salter 8312* (BOL, holo.!, NBG!, SAM!).

Bulb 10–15(–20) mm long, ovoid to globose; inner scales white; outer scales greyish and membranous, sometimes producing a neck. *Leaves* hysteranthous, 1–7, linear to terete, erect or spreading, (18–)25–40(–60) mm long, 0,3–1 mm broad, glabrous. *Peduncles* (18–)35–90 mm long, with (1–)2–4 flowers. *Bracts* less than 1 mm long; lowest with spurs less than 1 mm long. *Pedicels* 2–5(–6) mm long, straight, sometimes elongating slightly and/or becoming arcuate in fruit. *Perianth* brownish or white with a brown dorsal stripe, fused for 0,5–1 mm, 3–3,5(–5) mm long, spreading or somewhat recurved. *Filaments* 1,5–2 mm long, lanceolate; anthers dorsifixed, *c*.0,5 mm long. *Ovary* ovoid, *c*.1,5 mm long; style *c*.1 mm long, subcapitate. *Capsule* ovoid to ellipsoid, obtuse or acute at the apex, 4–6 mm long. *Seeds* angled or less often flattened, *c*.1,5 mm long.

Confined to the south-western Cape in the Cape Town, Stellenbosch and Caledon areas.

Recorded as growing on well-drained clay, sandy or gravelly soils. Flowers open in the morning, are produced in late summer.

For illustration see Kidd, M. M. (1950), *Wild flowers of the Cape Peninsula*, pl. 14, fig. 3.

SELECTED SPECIMENS

CAPE—3318 (Cape Town): Camp Ground, *Compton 17946* (NBG); W. side of Table Mountain, *Esterhuysen 14675* (BOL, PRE); Stellenbosch Flats, *Duthie s.n.* sub STE *1603* (K, PRE, STE).

—3418 (Simonstown): Schusters Kraal, *Penfold s.n.* sub NBG *73250* (NBG).

—3419 (Caledon): Schilpadkop area, Riviersonderend Mtns, *Esterhuysen 21040* (BOL).

Litanthus Harv.

J. Bot. Lond. **3:** 314, t.9 (1844).

Bulb imbricate with membranous outer scales. *Leaves* hysteranthous, basal, narrow-linear. *Peduncle* usually with 1 flower, solitary. *Bracts* 2 (one sterile), both spurred. *Flower* pendulous. *Perianth* fused to form a cylindrical tube for at least half its length, marcescent. *Capsule* loculicidal. *Seeds* usually angled, with loose-fitting testa.

Type species: Litanthus pusillus Harv.

Monotypic. *L. pusillus* occurs from the south-western Cape to Natal and the Transvaal.

The small number of pendulous flowers and the tubular perianth serve to separate *Litanthus* from *Drimia* to which it is, however, very closely related.

Harvey, in his type description, remarked "This is perhaps the smallest individual of the Liliaceous group". No species is known to the present author to have consistently smaller individuals, although *Drimia minor* may be of the same order of size.

Litanthus pusillus Harv. in J. Bot., Lond. **3:** 315, t.9 (1844). Type: "shady places in the woods by the Zwartkops River, Uitenhage, Cape of Good Hope", *Zeyher s.n.* (TCD, lecto.!, BOL!), *Drège 8514c*.

Bulb globose to ovoid, with whitish fleshy scales and few membranous outer scales, 6–13 mm long. *Leaves* usually hysteranthous, 1–3, narrowly linear, 15–70 mm long, erect or spreading. *Peduncles* usually solitary, erect, with 2 bracts and a single flower, (17–)20–80 mm long. *Bracts* spurred, *c.*1 mm long, including the spur. *Pedicels* 1–6 mm long, including the spur. *Pedicels* 1–6 mm long, recurved in flower, ascending in fruit. *Flowers* white or, rarely, pale pink. *Perianth segments* fused to form a cylindrical tube 2,5–5 mm long; free portion of segments ascending, *c.*1 mm long. *Filaments* very short, attached to upper part of the perianth tube; anthers dorsifixed, *c.*1 mm long, dehiscing longitudinally. *Ovary* sessile, more or less ellipsoid, *c.*1,5 mm long; style cylindrical, 2–3 mm long; stigma subcapitate. *Capsule c.*3–5 mm long. *Seeds* usually angled, *c.*0,5 mm long.

Although records are probably incomplete because of the small size of the plant, it appears to be very widespread in South Africa except for the dry interior.

Occurs most frequently in rock crevices in both damp and dry localities. Flowers in summer (September to March) and the flowers open in the late afternoon.

SELECTED SPECIMENS

TRANSVAAL—2527 (Rustenburg): Jack Scott Private Nature Reserve, *Wells 2485* (PRE).
—2530 (Lydenburg): Waterval Boven, *Van der Merwe s.n.* sub PRE *3206* (PRE).
—2628 (Johannesburg): Johannesburg, *Bredenkamp 454* (PRE).

SWAZILAND—2531 (Komatipoort): Havelock Concession, *Saltmarshe s.n.* sub *Galpin 1042* (BOL & PRE).

ORANGE FREE STATE—2827 (Senekal): Groot Doornkop, Senekal, *Goossens 932* (PRE).
—2927 (Maseru): 18 miles from Hobhouse on Ladybrand road, *Acocks 11186* (PRE).

LESOTHO—2828 (Bethlehem): Leribe, *Dieterlen 855* (P, PRE).
—2927 (Maseru): Mamathes, *Jacot Guillarmod 882* (PRE).

NATAL—3030 (Port Shepstone): Gibralter, *Strey 10019* (PRE).

CAPE—3118 (Vanrhynsdorp): Papendorp, *Hall 3291* (NBG).
—3224 (Graaff Reinet): Cave Mountain, near Graaff Reinet, *Bolus 241* (BOL).
—3226 (Fort Beaufort): Oxton Manor, Whittlesea, *Galpin 8386* (PRE).
—3323 (Willowmore): Uniondale, *Esterhuysen 16868a* (BOL).
—3325 (Port Elizabeth): Red House, *Paterson s.n.* sub GRA *2083* (PRE).

Schizobasis Bak. J. Bot., Lond. **11:** 105 (1873).

Bulb imbricate. *Leaf* usually 1, narrowly linear; lamina present only on young bulbs, otherwise represented by bulb scales only. *Peduncles* erect or twining, usually much-branched, photosynthetic. *Bract* one to each flower, spurred. *Pedicel* one in the axil of each bract, not articulated. *Perianth segments* spreading, shortly fused, similar, marcescent. *Filaments* narrowly lanceolate, not connate, basally adnate to the perianth; anthers dorsifixed. *Ovary* sessile, subellipsoid to ovoid; style simple; stigma not differentiated or slightly 3-lobed. *Capsule* loculicidal. *Seeds* flat or angled.

Type species: S. macowanii Bak. (= *S. intricata* (Bak.) Bak.)

Distributed throughout most of South Africa and South West Africa.

KEY TO THE SPECIES OF *SCHIZOBASIS* IN SOUTHERN AFRICA.

Plants erect ....1. **intricata**
Plants twining ....2. **cuscutoides**

1. **Schizobasis intricata** (Bak.) Bak. in J. Bot., Lond. **1874:** 140 (1874).

Anthericum intricatum Bak. in J. Bot., Lond. **1872:** 140 (1872). Syntypes: banks of the Orange River, *Burke s.n.;* without locality, *Zeyher 4284* (SAM!).

Anthericum flagelliforme Bak. in J. Bot., Lond. **1872:** 140 (1872). Type: "Aapages river" (Aapies River, Transvaal), *Burke s.n.*

Schizobasis flagelliformis (Bak.) Bak. in J. Linn. Soc., Bot. **15:** 261 (1876).

Schizobasis macowanii Bak. in J. Bot., Lond. **1873:** 105 (1873). Type: "Inter frutices prope Somerset East", *MacOwan 1847* (BOL!, SAM!).

Schizobasis schlechteri Bak. in Bull. Herb. Boissier, sér. 2, **1:** 783 (1901). Type: "Südwest-Afrika (Natal): Regio orientalis prope Umtata, alt. 3400 pedes" (sic!), *Schlechter 6327* (BOL!, PRE!, Z!). This specimen was collected at Umtata, Transkei.

Schizobasis dinteri Krause in Engl. Bot. Jahrb. **48:** 355 (1912). Type: "Gross-Namaland: bei Marienthal in der Kuswüste unterhalb des Staudammes", *Dinter 2005* (SAM!).

Asparagus micranthus Thunb., nom. nud. (specimens labelled by Thunberg in UPS).

Bulb globose, with pale (white, pink or yellowish) fleshy scales, often with a few membranous, less often fibrous. *Leaves* absent, except in seedling stage, linear, *c*.40–60 mm long. *Peduncles* 1–3 per bulb, rather wiry, erect, usually *c*.100–500 mm high, sometimes zigzagging at the nodes, glabrous or pubescent towards the base, usually purplish towards the base and green above, usually much branched: branches reflexing from the base and curving up, or ascending from the base and straight—when the plant may adopt a virgate habit. *Bracts* spurred at all nodes, rarely exceeding 2–3 mm in length including the strongly reflexed spurs. *Pedicels* varying from all similar in length (usually increasing in length slightly from the apex) and up to *c*.7 mm long, to varying from *c*.10–*c*.50 mm in length on the same branch and strongly arcuate. *Perianth segments* very shortly fused, spreading, whitish or pale yellow to pale pink, with or without a greenish or brown longitudinal dorsal stripe, usually 3–4 mm long. *Filaments* attached near the base of the perianth segments, narrowly lanceolate, slightly shorter than the perianth segments; anthers dorsifixed, less than 1 mm long. *Ovary* sessile, subellipsoid to ovoid, *c*.1,5 mm long, with *c*.4–8 ovules per locule; style cylindrical, *c*.1–1,5 mm long; stigma undifferentiated or slightly 3-lobed. *Capsule* more or less ellipsoid, *c*.3,5–5 mm long. *Seeds* flat or angled, *c*.2 mm long.

Recorded from most of South Africa, Swaziland, southern Botswana and southern South West Africa. Specimens, not seen by the present author, have been reported from as far north in South West Africa as the Otjiwarongo district (Sölch, Roessler & Merxmüller, 1970).

Occurs in grassveld or among rocks. Flowers in summer. The flowers are not scented.

There is a considerable range in the form of branching of the aerial axes. In many specimens, especially from the central districts of South Africa, there is a strong zigzagging of the axes at the nodes which, with widely spreading branches, produces the appearance of dichotomous branching. Other plants, from widespread localities but especially in the southern Transvaal, southern Cape and parts of South West Africa, possess a virgate branching form. The former is strongly reminiscent of the habit of some forms of *Asparagus subulatus* or *A. exuvialis,* while the latter is reminiscent of *A. virgatus.* Associated with the virgate form there is a tendency for the pedicels to be more similar to one another in length than is the case in the more divaricately branched form. Because of the rather isolated (geographically) records of the virgate form and the gradients in form linking it with the other form, no taxonomic status has been allocated to it.

Selected Specimens

SOUTH WEST AFRICA—2517 (Gibeon): *Dinter 2005* (SAM).
—2718 (Grünau): Great Karasberg, *Pearson s.n.* sub Percy Sladen Memorial Expedition 1912/13 no. *8303* (BOL).
BOTSWANA—2425 (Gaberones): N.W. of Molepolole, *Codd 8932* (PRE).
TRANSVAAL—2229 (Waterpoort): Wylliespoort, Soutpansberg, *Codd 4869* (PRE).
—2329 (Pietersburg): Haenertsburg, *Hafström & Acocks 226* (PRE).
—2330 (Tzaneen): Modjadji's Reserve, near Duivelskloof, *Krige 200* (PRE).
—2527 (Rustenburg): Magaliesberg, Rustenburg, *Pegler 1072* (BOL).
—2528 (Pretoria): Aapies River, Magaliesberg, *Schlechter 3624* (BOL, GRA, PRE, SAM, Z).

—2531 (Komatipoort): 12 miles N.E. of Barberton on road to Kaapmuiden, *Codd 1632* (PRE).
—2627 (Potchefstroom): Isaac Stegmann Nature Reserve, *Mogg 34682* (PRE).
—2628 (Johannesburg): Zoo Kopjes, *Moss 19052* (PRE).

SWAZILAND—2631 (Mbabane): Sibowe River, Hlatikulu, *Ben Dlamini s.n.* sub PRE *32060* (PRE).

ORANGE FREE STATE—2925 (Jagersfontein): S.E. slopes of Vaalberg, *Smith 5482* (PRE).
—2926 (Bloemfontein): Bestersput, *Acocks 8498* (PRE).
—3025 (Colesberg): 12 miles beyond Trompsburg on road to Philippolis, near Blaauheuwel, *Werger 220* (PRE).

NATAL—2731 (Louwsburg): Louwsburg, above Pivaans River, Rooikrans, *Dyer 5042* (PRE).
—2831 (Nkandla): near Old Gold Mine, *Venter 3000* (PRE).

CAPE—2823 (Griekwastad): Campbell, *Acocks s.n.* (BOL).
—2824 (Kimberley): Barkly West, *Acocks 1514* (PRE).
—2917 (Springbok): 23 miles S.W. of Steinkopf, *Marloth 13258* (PRE).
—2922 (Prieska): near Prieska, *Fuller 113* (BOL).
—3126 (Aliwal North): Elands Hoek, near Aliwal North, *Bolus 234* (BOL).
—3119 (Calvinia): 1,75 miles N. of Calvinia, on slopes of Hantamsberg, *Smith 2480a* (PRE).
—3126 (Queenstown): Bowker's Kop, *Galpin 2208* (GRA, PRE).
—3128 (Umtata): Umtata, *Schlechter 6327* (BOL, GRA, PRE).
—3225 (Somerset East): Little Fish River, near Somerset East, *MacOwan 1847* (BOL, SAM).
—3226 (Fort Beaufort): Woburn, *Acocks 11155* (PRE).
—3227 (Stutterheim): King Williams Town, *Sim 1051* (SAM).
—3319 (Worcester): Klaasvoogds, *Esterhuysen 22711* (BOL).
—3320 (Montagu): Bonnievale, *Marloth 11997* (PRE).
—3322 (Oudtshoorn): Prince Albert, *Marloth 2291* (PRE).
—3325 (Port Elizabeth): Zuurberg, *Holland 213* (GRA).
—3326 (Grahamstown): Howison's Poort, *Bolus 9136* (BOL, PRE).

2. **Schizobasis cuscutoides** (Burch. ex Bak.) Benth. & Hook.f., Gen. Pl. **3:** 786 (1883).

Asparagus cuscutoides Burch. ex Bak. in J. Linn. Soc., Bot. **14:** 606 (1875). Type: "Caput Bonae Spei, in saxosis aridis ad ripas fluminis Gariep", *Burchell 2673* (L!, P!).

Schizobasis buchubergensis Dint. in Feddes Rep. **30:** 80 (1932). Type: S.W.A., Buchuberge, *Dinter 6493*.

Bulb globose to ovoid, with pale-coloured fleshy scales and usually with a few membranous outer scales, usually 20–50 mm long. *Leaves* absent from mature plants, not recorded for the juvenile stage. *Peduncles* 1–3 per bulb, rather wiry, twining, usually 100–150 mm long, tortuous but not zigzagging at the nodes; branches more or less spreading. *Bracts* spurred at all nodes, rarely exceeding 2–3 mm in length including the strongly reflexed spur. *Pedicels* usually 5–10 mm long. *Perianth segments* very shortly fused, spreading, whitish, with or without a brown or green longitudinal stripe, usually 3–4 mm long. *Filaments* attached near the base of the perianth segments, narrowly lanceolate, slightly shorter than the segments; anthers dorsifixed, less than 1 mm long. *Ovary* sessile, subellipsoid to ovoid, *c*.1,5 mm long, with *c*.4–8 seeds per locule; style cylindrical, *c*.1–1,5 mm long; stigma undifferentiated or slightly 3-lobed. *Capsule* more or less ellipsoid, *c*.3,5–5 mm long. *Seeds* flat or angled, *c*.2 mm long.

Recorded from a rather narrow belt from southern South West Africa (Buchuberge in the Lüderitz district) and the northern Cape to Swaziland.

Occurs in grassveld and in semi-desert especially in rocky places. Flowers are produced in summer and no scent has been recorded.

The isolated and distant localities in which this species has been found are puzzling, and the overall similarities between this species and *S. intricata* create some difficulty in justifying its separation. The difference lies entirely in whether the plant is erect or climbing. It is considered possible that this may result from differences in environmental conditions, but in the absence of further data it is preferred to recognise two species.

SELECTED SPECIMENS

SWAZILAND—2631 (Mbabane): Komati Bridge, Pigg's Peak, *Compton 30691* (NBG, PRE).
ORANGE FREE STATE—2824 (Kimberley): between Kimberley and Jacobsdal, *Schweickerdt 1142* (PRE).
—2926 (Bloemfontein): Bloemfontein, *Potts 472* (BOL).
CAPE—2820 (Kakamas): Aughrabies Falls, *Acocks 16382* (PRE).
—2822 (Glen Lyon): Langebergen at Bergenaarspad, *Acocks 2098* (PRE).
—2917 (Springbok): near Spitskop, Steinkopf, *Meyer s.n.* sub *Marloth 13688* (PRE).

Bowiea Harv. ex Hook.f.

Curtis's bot. Mag. **93:** t.5619 (1867), nomen conservandum, non *Bowiea* Haworth, Lond. Edinb. Dubl. Philos. Mag. **64:** 299 (1824).

Schizobasopsis Macbride in Contrib. Gray Herb. n.s. **56:** 3 (1918).

Type species: S. volubilis (Harv. ex Hook.f.) Macbride.

Bulb usually partly epigeal, with imbricate scales. *Leaves* linear, lamina present only in seedling stage, otherwise represented by bulb scales only. *Peduncles* twining, succulent, much-branched, photosynthetic; many of the branches sterile. *Bract* one to each flower, spurred. *Pedicel* one to each bract, not articulated. *Perianth segments* spreading or reflexed, free or very shortly fused, similar, persistent, not marcescent. *Filaments* sublinear, expanding towards the base, attached at the base of the perianth; anthers dorsifixed, dehiscing longitudinally. *Ovary* sessile, ovoid to conical; style subcylindrical; stigma minutely 3-lobed. *Capsule* loculicidal. *Seeds* angular with loosely fitting testa.

Type species: Bowiea volubilis Harv. ex Hook.f.

Two species have been described; one from tropical Africa. The other is widespread in South Africa.

Bowiea volubilis Harv. ex Hook.f. in Curtis's bot. Mag. **93:** t.5619 (1867). Syntypes: Katberg, *Hutton s.n.* (TCD!); "eastern frontier", *Barber 892* (TCD!); *Barber 952* (TCD!); sine loc., *Cooper s.n.* (*Cooper 3609*, O.F.S. and *Cooper 3263*, Natal, both Z! and both identified by Harvey).

Schizobasopsis volubilis (Harv. ex Hook.f.) Macbride in Contrib. Gray Herb. n.s. **56:** 3 (1918).

Bulb subglobose or depressed globose, with whitish scales except the aerial parts of the semi-epigeal bulb which are green, usually without membranous outer scales, (15–)40–150 mm diameter. *Peduncles* 1–3, fleshy, green, much-branched, climbing to 0,5–2(–6) m. *Bracts* spurred, rarely over 4 mm long including the spur. *Pedicels* solitary, spreading or ascending, up to 100 mm long. *Flowers* white, green or yellowish green. *Perianth segments* fleshy, spreading or reflexed, more or less free, narrowly lanceolate, 5–9 mm long. *Filaments* sub-linear above, expanding towards the base, 3–6 mm long, attached at the base of the perianth; anthers 0,75–1 mm long. *Ovary* ovoid to conical, 2–3 mm long; style 2,5–4 mm long. *Capsule* ovoid, 8–12(–14) mm long. *Seeds* angular.

Occurs in southern South West Africa, the northern and eastern Cape, the Transvaal, Natal and north at least as far as Rhodesia.

Although most frequently found among bushes and trees, especially along river banks, it also occurs in drier areas, usually among boulders, or even in the open. Flowers are produced principally in summer and are not scented.

Despite the wide range of the species, there is not a very great degree of variation. Plants from the dry western localities do, however, tend to be very much more succulent.

For illustration see Flower. Pl. S. Afr. **21:** t.815 (1941).

Selected Specimens

SOUTH WEST AFRICA—2819 (Ariamsvlei): Velloordrift, *Dinter 5195* (BOL, G, PRE, S, Z).

TRANSVAAL—2428 (Nylstroom): Pyramid Estate, near Potgietersrust, *Galpin 9094* (PRE).

—2527 (Rustenburg): Jack Scott Private Nature Reserve, *Wells 2324* (PRE).

—2528 (Pretoria): Fountain Grove, *Leendertz 122* (BOL, GRA, L).

—2529 (Witbank): Nooitgedacht, Loskopdam, *Theron 1223* (PRE).

—2531 (Komatipoort): Skipberg, Kruger National Park, *Van der Schijff 392* (PRE).

—2627 (Potchefstroom): near Magaliesberg, *Codd 2552* (PRE).

—2628 (Johannesburg): Suikerbosrand, 6 miles W. of Heidelberg, *Prosser 1309* (NBG, PRE).

NATAL—2929 (Underberg): Tabamhlope, *West 617* (PRE).

—2930 (Pietermaritzburg): Richmond, Byrne, *Galpin s.n.* (BOL).

—3030 (Port Shepstone): Totshe upper region, Port Shepstone, *Strey 7165* (PRE).

CAPE—2817 (Vioolsdrif): Vioolsdrif, *Wisura 1462* (NBG).

—2820 (Kakamas): near Riemvasmaak, western edge of Molopo Gorge, *Acocks 16383* (PRE).

—3029 (Kokstad): Mount Currie, *Tyson 1424* (G, GRA).

—3126 (Queenstown): Bowkers Park, Queenstown, *Galpin 2568* (GRA, PRE).

—3127 (Lady Frere): Cala, *Pegler 107* (GRA).

—3128 (Umtata): Ingungo, *Schlechter 6314* (GRA, P, Z).

—3226 (Fort Beaufort): top of Katberg Pass, *Dyer 2309* (GRA, PRE).

—3227 (Stutterheim): Thomas River, *Compton 19281* (NBG).

—3228 (Butterworth): Kentani, *Pegler 454* (BOL, PRE).

—3324 (Steytlerville): Armansvriend, *Noel 1548* (GRA).

—3327 (Peddie): Kaffir Drift, *Lloyd s.n.* sub PRE *32065* (PRE).

Nomina Dubia

Drimia dregeana Kunth, Enum. Pl. **4:** 340 (1843). Type: Cape, *Drège 1616c,* not traced and description inadequate. A specimen of *Scilla nervosa (Drège 4506a)* in S has been identified as *D. dregeana,* but without proof that it had been compared with the type.

Drimia eckloniana Schult. & Schult., Syst. Veg. **7:** 1710 (1830). Type: "in arenosis Prom. b. Spei", *Ecklon s.n.,* not traced and description inadequate.

Drimia pauciflora Bak. in Engl. Bot. Jahrb. **15,** Beibl. 35: 6–7 (1892). Type: "C.B.Spei (Ecklon et Zeyher, Asphod.n. 102)", not traced and description inadequate.

Drimia viridiflora Kunze in Linnaea **20:** 10 (1847). Type: Cape, *Gueinzius s.n.,* not located and description inadequate.

Ornithogalum calcaratum Bak. in Gdnrs' Chron. 1874, **1:** 723 (1874). Type: "eastern district of the Cape Colony", *MacOwan s.n.*, not located and description inadequate. Probably a species of *Drimia.*

Ornithogalum ciliatum L.f., Suppl. 199 (1781). Type: Cape, *Thunberg s.n.* (UPS–*8281*!). Probably a good species of *Drimia* but material at present insufficient. Leaves leathery, obovate, with ciliate margins; cf. notes on *D. marginata* (p. 295).

Urginea ciliata (L.f.) Bak. in J. Linn. Soc., Bot. **13:** 218 (1873).

Ornithogalum haworthioides Bak. in J. Bot., Lond. **1878:** 322 (1878). Type: "Cape Colony on hills near Graaff-Reinet", *Bolus 814*, not located and description inadequate. *Drimia bolusii* Bak. in Fl. Cap. **6:** 443 (1897), nom. nov. for *Ornithogalum haworthioides.*

Urginea berylloides Bak. in Bull. Herb. Boissier, sér. 2, **1:** 785–786 (1901). Type: Natal, Umgeni River, *Rehmann 8553*, not located and description inadequate.

Urginea muirii N.E. Br. in Gdnrs' Chron., ser. 3, **93:** 334 (1933). Type: Riversdale, *Muir 4846* (K, holo.!). This is a species of *Drimia,* but material insufficient for identification or description.

Urginea rigidifolia Bak. in J. Bot., Lond. **1878:** 323 (1878). Type: near Graaff Reinet, *Bolus 783* (K, holo.!). Resembles *D. anomala* but leaves 1–1,25 mm diameter and lacking abscission discs, pedicels 12–15 mm long. May be closer to *Rhadamanthus.*

NOMINA EXCLUSA

Anthericum filifolium Thunb., Prodr. **62** (1794). Type: ?"ex Hantam", *Thunberg s.n.* (UPS-*8372!*). *Ornithogalum* sp. *Anthericum nematodes* Schult. & Schult., Syst. Veg. **7:** 472 (1829), nom. nov. for *A. filifolium* Thunb.

Urginea nematodes (Schult. & Schult.) Bak. in J. Linn. Soc., Bot. **13:** 218 (1873).

Ornithogalum thunbergii Kunth, Enum. Pl. **4:** 369 (1843), nom. nov. for *Anthericum filifolium* Thunb.

Drimia angustifolia Kunth, Enum. Pl. **4:** 340 (1843). Type: Struisfontein, near Steelkloof, *Drège 8618b* (P, lecto.!). *Ledebouria undulata.*

Drimia chlorantha Bak. in Fl. Cap. **6:** 443 (1897). Type: near Sheba Battery, Avoca, *Galpin 1191* (K!, NH!, PRE!). *Albuca* sp.

Drimia ludwigii Miquel in Bull. Scien. Phys. Neerl. **1839:** 39–40 (1839). Type: specimen from Ludwig (inflorescence only) with full MS description by Miquel (U!). *Ledebouria undulata.*

Hyacinthus flexuosus Thunb., Prodr. Fl. Cap.: 64 (1794). Type: Cape, *Thunberg s.n.* (UPS). *Ornithogalum* sp.

Urginea acinacifolia Schinz in Beiträge zur Kenntn. Fl. S.W.A. in Verh. Brandenb. **31:** 220 (1890). Type: Oshando in S.E. Ondonga, *Schinz 24* (Z, lecto.!, K!). *Albuca angolensis* Welw.

Urginea dimorphantha Bak. in Bull. Herb. Boissier, sér. 2, **3:** 663 (1903). *Ornithogalum* sp.

Urginea lorata Bak. in Bull. Herb. Boissier, sér. 2, **3:** 664 (1903). Type: *Rautanen 771* (Z!). *Dipcadi* sp.

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This paper will be the last in a series based on a Ph.D. thesis submitted to Rhodes University in 1973.

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